Installation and Operation Manual

Teranex Processors

Blackmagicdesign

Mac OS X™

Windows™

December 2014

Welcome

Thank you for purchasing a Blackmagic Design Teranex converter for your facility.

The Teranex converter you have purchased is an amazing quality standards converter that you will spend hours playing with to discover all the wonderful functions it has. I am still playing with it myself to see all the other things I can use it for! We have packed it with the latest SDI, HDMI and analog connections so you can use it to convert and connect anything!

One of the exciting advantages of the Teranex converter is the amazing quality of the conversions. It features a powerful SIMD processor that allows more complex calculations, allowing the Teranex to do a better job at processing video, removing field movement, detecting cadence, noise reduction, timecode conversions, subtitle conversion and much more!

Enjoy exploring your Teranex processor and we all hope you have many years of enjoyment out of it. Please let us know of any ideas and features you would like to see, as we are constantly updating the software so it gets better and better!

Grant Petty
CEO Blackmagic Design

Teranex Processors

Blackmagicdesign

5 Getting Started

Introducing Teranex 5
Connecting Teranex 6
Setting your Input 6
Setting your Output 6
Applying Settings using the Control Panel 7

9 Conversion Workflows

Up Conversion 9
Down Conversion 10
Cross Conversion 11
Standards Conversion 12
Up Conversion to Ultra HD using Teranex Express 13
Cadence Removal 14
Clean Cadence 14
Presets 15
Audio and System Status LEDs 15

16 Teranex Processor Settings

LCD Menu 16
Video Menu Settings 16
- Color 16
- Clip 17
- Aspect 17
- Video Setup Menu 18
- Proc Amp Menu Settings 20
- Test Patterns Menu 21
- Advanced Menu Settings 21

Audio Menu Settings 23
- Audio Mapping 23
- Audio Gain 24
- Audio Delay 24
- Audio Setup Menu 25
- Dolby Encode 26
- Dolby Metadata 27

Noise Reduction Menu Settings 29
- Bias 29
- Split Screen On/Off 29
- Red Overlay On/Off 29

Ancillary Data Menu Settings 30
- Closed Caption Menu 30
- Timecode Menu Settings 32
- Video Index Menu 35

System Setup Menu Settings 36
- Ethernet Setup Menu 36
  - IP Menu 36
  - Subnet Mask Menu 36
  - Gateway Menu 36
  - DHCP Menu 37
- Factory Reset 37

Reference Menu Settings 37
- Pixel Offset 39
- Line Offset 39

3D Menu Settings 40
- 3D Mode 40
- Input 41
- Output 41
- Intensity 42

Teranex Processors

Depth 42
Camera Align 42

47 Capture and Playback
Using your Favorite Editing Software 47
DaVinci Resolve 48
Avid Media Composer 49
Apple Final Cut Pro 7 50
Apple Final Cut Pro X 51
Adobe Premiere Pro CC 52
Adobe After Effects CC 53
Adobe Photoshop CC 54

55 Waveform Monitoring
Using Blackmagic UltraScope for Waveform Monitoring 55

59 Format Conversion Table for Teranex 2D and 3D

64 Format Conversion Table for Teranex Express

67 Aspect Ratio Conversion Table

69 DB25 Connector Pin-outs for the Teranex 2D

70 Installing Blackmagic Teranex Software
Installing Blackmagic Teranex Software on Mac OS X 70
Installing Blackmagic Teranex Software on Windows 71
Updating the Teranex Processor Software 72

73 Using the Blackmagic Teranex Setup Utility

76 Installing Optional Blackmagic Dolby® Encoder/Decoder

77 Installing Optional Blackmagic Fiber Optic SFP

78 Developer Information

79 Help

80 Warnings

81 Warranty

5 Getting Started

Teranex 2D Processor

Teranex 3D Processor

Teranex Express

Introducing Teranex

Teranex is a powerful and easy to use video signal processor for real time conversion between video standards, frame rates and resolutions. The control panel features selection buttons for primary input and output settings, with soft menu buttons and rotary knob to navigate the LCD menus. Simply program your input settings, program your output settings and your conversion is ready for processing.

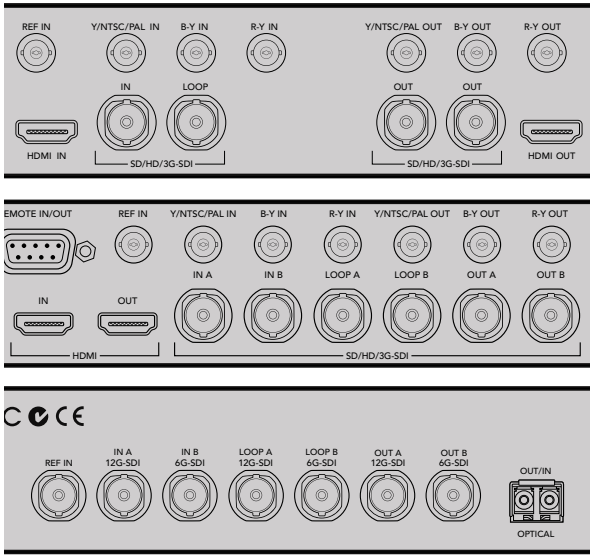
It won't take you long to familiarize yourself with Teranex. You'll find yourself quickly moving between selection and soft menu buttons as you program your settings. Buttons are illuminated green for currently selected or available settings, and blue when confirmed, so it's easy to see what you're doing.

Enhance the quality of your conversions using noise reduction, sharpness, cadence removal, adjustable scaling and much more.

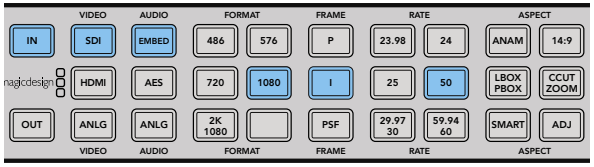
The primary functions you can perform with Teranex are:

Up Conversion	Converting your video to a higher resolution. For example, SD to HD.
Down Conversion	Converting your video to a lower resolution. For example, HD to SD.
Cross Conversion	Converting the video resolution or aspect ratio of your video. For example, 720p59.94 to 1080i59.94.
Standards Conversion	Converting your video from one frame rate to another. For example, 1080i59.94 to 1080i50
Noise Reduction	Cleaning up noisy source material for higher quality conversions.
Test Signals	Generating known reference signals when they are needed in your work flow.
3D	Performing format and/or frame rate conversion of stereoscopic inputs and for conversion of 2D sources into simulated 3D in the Teranex 3D Processor.
Frame Sync	Synchronizing video sources that originate outside your facility to your internal master sync generator.

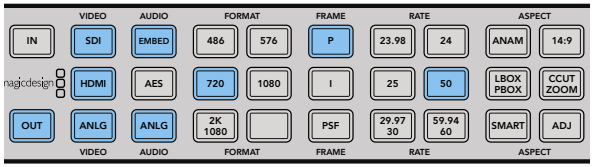
However, Teranex is more than a converter, it's a high end video processor. You can add enhancements to improve the video output from your equipment, your source material while editing, or even while capturing and playing back from your computer via Thunderbolt. Let's get started with Teranex!



Connect your video source and destination equipment to your Teranex processor.



Press the IN button to display the video input format. In this example, the format is 1080i50 via SDI with embedded audio.



Press the OUT button and select a format to convert to. In this example, the conversion is set to: 720p50, embedded SDI and HDMI audio, plus analog audio.

Connecting Teranex

Getting started with Teranex is as easy as plugging in power, plugging in your video inputs and connecting your output destinations.

Step 1. You can power your Teranex processor by connecting an IEC cable to the AC power socket. The Teranex 3D has two internal AC power supplies for redundancy. The Teranex 2D has one internal AC power supply, and you can use the 12V DC port for external battery power and/or a "brick" DC adapter in case one supply fails or is accidentally disconnected. (The DC power supply is an optional purchase.)

Step 2. Connect your camera, deck or other video source to the video inputs on your Teranex.

Step 3. Connect the video output connectors to a video destination, such as a disk recorder or video monitor. All video outputs are simultaneously active so you can connect more equipment if needed.

Setting your Input

After connecting your equipment, verify your input signal using the control panel buttons, soft menu buttons and LCD.

Step 1. Press the IN button on the control panel.

Step 2. Using the VIDEO buttons, select your SDI, HDMI, Analog or Optical video input, depending on your model. If selecting analog, confirm component or composite by turning the rotary knob. When your input is selected, you will see the image displayed on the built-in LCD. The Teranex processor will automatically detect your input format and illuminate the corresponding buttons.

Step 3. Select your Embedded, AES or Analog audio input type using the AUDIO buttons. If selecting Analog, confirm your connection as either DB25 or RCA using the soft menu buttons.

Setting your Output

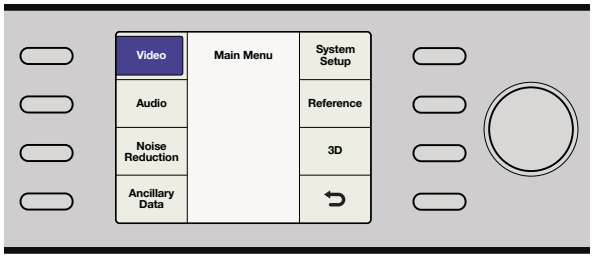
Now select your desired output settings using the control panel buttons, soft menu buttons and LCD.

Step 1. Press the OUT button on the control panel.

Step 2. Press the FORMAT, FRAME, RATE and ASPECT buttons to set your desired output format, frame type, frame rate and aspect ratio. When using AES or analog audio outputs on the Teranex 3D, select the desired type in the AUDIO button section.

Step 3. Using the soft menu buttons, select Change to confirm your settings. The video and audio output buttons will illuminate blue, indicating the active outputs.

The converted video output will now be seen on the LCD, and sent to your connected video equipment.



Use the control panel LCD, soft menu buttons and rotary knob to navigate the menus and apply your settings.

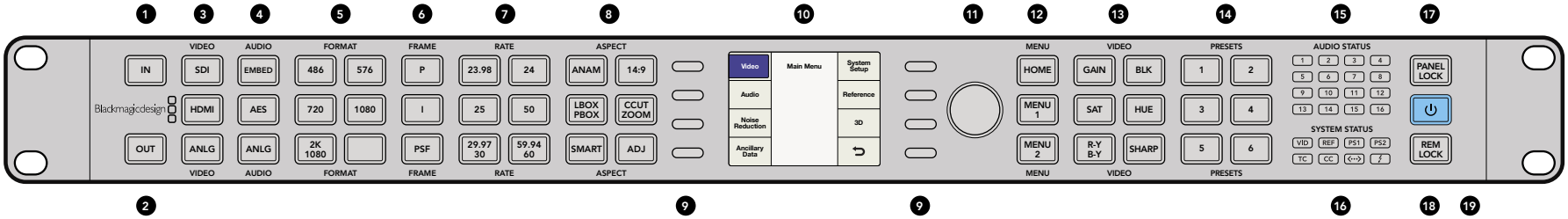
Applying Settings using the Control Panel

Use the control panel LCD, soft menu buttons and rotary knob to navigate through the menus and make your selections. For example, when setting timecode, the cursor is moved forward or backward through the timecode register using the soft menu buttons. Timecode digits are adjusted using the rotary knob. Pressing the rotary knob returns parameters to their default value.

Program your conversion settings by pressing the buttons on the control panel. Buttons are illuminated so you can quickly check the status of your audio and video connections and output settings.

Explore the Teranex menus and experiment with conversion workflows. You'll find examples of common workflows on the following pages.

Below is an overview of control panel features.



1. IN - Press to display current input settings.

2. OUT - Press to display and change current output settings.

3. VIDEO - Press to select video input type, and displays all video outputs.

4. AUDIO - Press to select audio input type, and displays available audio outputs.

5. FORMAT - Press to select the video output format, and displays the video input format.

6. FRAME - Press to select the video output frame type, and dIsplays video input frame type.

7. RATE - Displays video input frame rate as frames or fields per second. Press to select video output rate.

8. ASPECT - Press to select video input and output aspect ratio settings.

9. SOFT MENU BUTTONS - Press to navigate the LCD menus and apply settings.

10. LCD - Displays the video input and output, and menu settings.

11. ROTARY KNOB - Turn to adjust menu settings. Press to return settings to default.

12. MENU - Press to toggle the LCD between main menu and live video. MENU 1 and MENU 2 are programmable as page shortcuts.

13. VIDEO - Press to activate video proc amp settings.

14. PRESETS - Press to save or recall custom system configurations.

15. AUDIO STATUS - Displays available input and output audio channels.

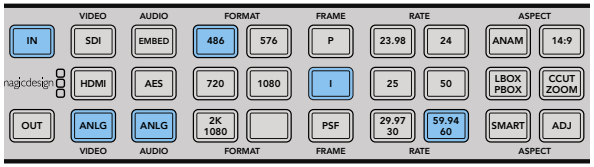
16. SYSTEM STATUS - Displays input, output and control status information.

17. PANEL LOCK - Press and hold to lock the control panel to prevent accidental changes. Press and hold to unlock.

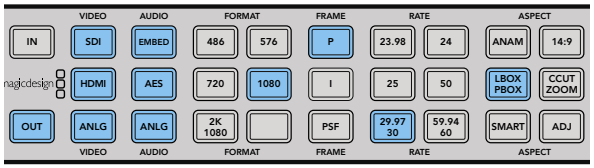
18. REM LOCK - Press and hold to prevent a remote device from controlling the Teranex via Ethernet. Press and hold to unlock.

19. POWER - Press to power ON. Press and hold to power OFF.

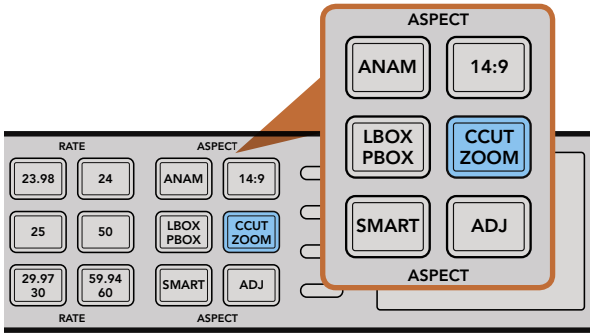
Using Your Teranex Converter


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ

Pressing the IN button displays the input format on the control panel buttons. In the above illustration, the input format is 486i59.94 via analog component with analog audio.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ

Press the OUT button to select your output settings. In the above illustration the output is set to 1080p29.97 with pillarbox aspect ratio.



Aspect ratios are set using the Aspect buttons on the control panel.

Up Conversion

Up Conversion is the process of converting your video to a higher resolution. For example, you may need to insert an NTSC SD source into an HD production. The NTSC clip can be converted to many 720 and 1080 HD output formats and frame rates, depending on your project's requirement. Teranex processors employ high quality de-interlacing and up conversion algorithms, assuring outstanding results. In this example, 486i59.94 component analog video is converted to 1080p29.97 using zoom aspect ratio and RCA analog audio inputs on the Teranex 2D or 3D.

Power your Teranex Processor and connect your inputs and outputs.

Setting your Input

Step 1. Press the IN button on the control panel and select ANLG video. The Analog Input menu will be displayed on the LCD.

Step 2. Using the rotary knob, select Component as your analog input type. Press the IN button to display your input video on the LCD. Teranex automatically detects the input format and illuminates the corresponding buttons on the control panel.

Step 3. Press the ANLG audio button. Using the rotary knob, select RCA as your analog audio input type.

Setting your Output

Step 1. Press the OUT button on the control panel. On the Teranex 2D, all output buttons will be illuminated blue. On the Teranex 3D, the EMBED audio button will be blue. Select the AES or ANLG button. AES/EBU and analog audio outputs share the XLR connectors. On the Teranex Express, the EMBED audio button will be blue.

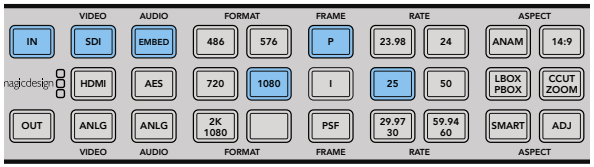
Step 2. Press the 1080 button. Select the P button for progressive output, and the 29.97/30 button to select your frame rate. The format, frame and rate buttons are now illuminated green, ready for you to accept your conversion set up or make changes.

Step 3. Using the soft menu buttons, select Change. The output video is now displayed on the LCD and sent to all output connectors. The buttons will also illuminate blue to confirm your settings.

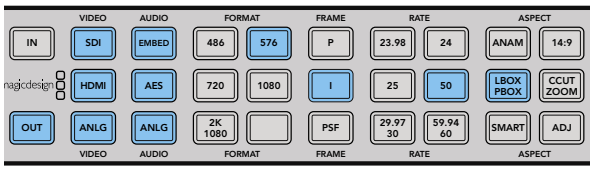
Setting your Aspect Ratio

Press the CCUT/ZOOM button to set your aspect ratio to Zoom. For more information on aspect ratio conversion see pages 17 and 67-68.

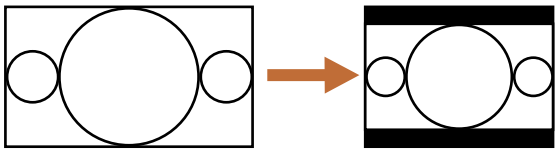
Your Teranex Processor is now ready to up convert your video.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ
VIDEO AUDIO FORMAT FRAME RATE ASPECT

Pressing the IN button displays the input format on the control panel buttons. In the above illustration, the input format is 1080p25 via SDI with embedded audio.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ
VIDEO AUDIO FORMAT FRAME RATE ASPECT

Press the OUT button to select your output settings. In the above illustration the output is set to 576i50 with letterbox aspect ratio.



16:9 Ratio Image

4:3 Ratio Display

Setting the LBOX/PBOX button on your SD output fits the 16:9 image inside the 4:3 frame. The 4:3 conversion will have black bars top and bottom and the correct widescreen geometry will be maintained.

Down Conversion

Down Conversion allows you to convert your video to a lower resolution. For example, you may need to distribute a PAL SD version of a 1080i50 HD program master to a client. Once again, high quality de-interlacing, down-sampling and anti-aliasing algorithms will assure outstanding down conversion results. In this example, 1080p25 video via SDI is converted to 576i50 (PAL) with letterbox aspect ratio. Audio is embedded in the input SDI signal.

Power your Teranex Processor and connect your inputs and outputs.

Setting your Input

Step 1. Press the IN button on the control panel and select SDI video. Teranex will display the input video on the LCD, automatically detect the input format and illuminate the corresponding buttons.

Step 2. Select EMBED as the audio input format.

Setting your Output

Step 1. Press the OUT button on the control panel. On the Teranex 2D, all output buttons will be illuminated blue. On the Teranex 3D, the EMBED audio button will be blue. Select the AES or ANLG button. AES/EBU and analog audio outputs share the XLR connectors. On the Teranex Express, the EMBED audio button will be blue.

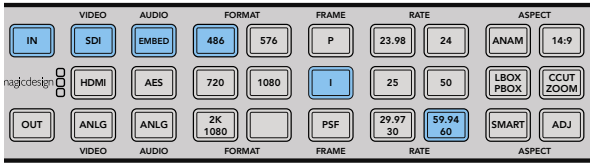
Step 2. Press the 576 button. The button will illuminate green. Note that the I button and the 50 button are also illuminated green. This is because interlaced video and 50 fields per second are the only selections available for a PAL 576 output.

Step 3. Using the soft menu buttons, select Change. The output video is now displayed on the LCD and sent to all output connectors. The buttons will also illuminate blue to confirm your settings.

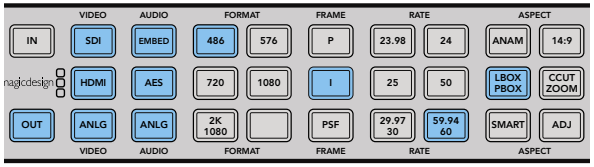
Setting your Aspect Ratio

Press the LBOX/PBOX button to set your aspect ratio to letterbox. For more information on aspect ratio conversion see pages 17 and 67-68.

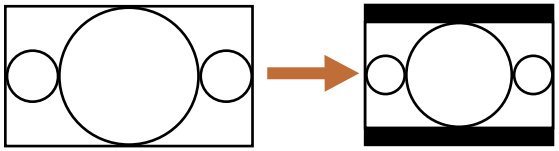
Your Teranex Processor is now ready to down convert your video.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ
VIDEO AUDIO FORMAT FRAME RATE ASPECT

Press the IN button to see the format of the video signal that you are converting. In this example, the format is 486i59.94 over SDI with embedded audio.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ
VIDEO AUDIO FORMAT FRAME RATE ASPECT

Press the OUT button to select your output settings. In the above illustration the output is set to 486i59.94 with letterbox aspect ratio.



16:9 Ratio Image

4:3 Ratio Display

Setting the LBOX/PBOX button on your SD output fits the 16:9 image inside the 4:3 frame. The 4:3 conversion will have black bars top and bottom and the correct widescreen geometry will be maintained.

Cross Conversion

Cross Conversion allows you to change the video resolution and/or aspect ratio of your program material. Cross conversions between 1080 and 720 HD formats are accomplished using a high quality de-interlacing algorithm that permits all conversions to be performed in the progressive domain. In SD formats, aspect ratio conversions between 4:3 and 16:9 are also easy to perform. In this example 486i59.94 with 16:9 aspect ratio is cross converted to letterbox 4:3 via SDI with embedded audio.

Power your Teranex Processor and connect your inputs and outputs.

Setting your Input

Step 1. Press the IN button on the control panel and select SDI video. Teranex will display the input video on the LCD, automatically detect the input format and illuminate the corresponding buttons.

Step 2. Select EMBED as the audio input format.

Setting your Input Aspect Ratio

Press the LBOX button to select letterbox, indicating that the input aspect ratio is 16:9.

Setting your Output

Step 1. Press the OUT button on the control panel. On the Teranex 2D, all output buttons will be illuminated blue. On the Teranex 3D, the EMBED audio button will be blue. Select the AES or ANLG button. AES/EBU and analog audio outputs share the XLR connectors. On the Teranex Express, the EMBED audio button will be blue.

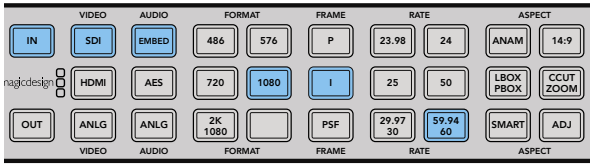
Step 2. Press the 486 button. The button is illuminated green. Note that the I button and the 59.94/60 button are also illuminated green. This is because interlaced video and 59.94 fields per second are the only selections available for an NTSC 486 output.

Step 3. Using the soft menu buttons, select Change. The output video is now displayed on the LCD and sent to all output connectors.

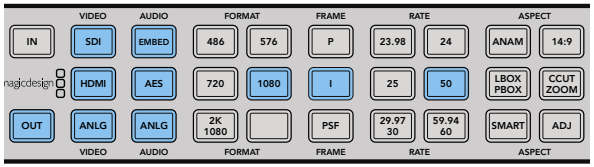
Setting your Output Aspect Ratio

Press the LBOX/PBOX button to set your aspect ratio to letterbox. For more information on aspect ratio conversion see pages 17 and 67-68.

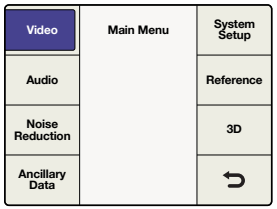
Your Teranex Processor is now ready to cross convert your video.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ
VIDEO AUDIO FORMAT FRAME RATE ASPECT

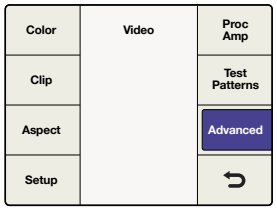
Pressing the IN button displays the input format on the control panel buttons. In the above illustration, the input format is 1080i59.94 via SDI with embedded audio.


VIDEO AUDIO FORMAT FRAME RATE ASPECT
IN SDI EMBED 486 576 P 23.98 24 ANAM 14:9
HDMI AES 720 1080 I 25 50 LBOX PBOX CCUT ZOOM
OUT ANLG ANLG 2K 1080 PSF 29.97 30 59.94 60 SMART ADJ
VIDEO AUDIO FORMAT FRAME RATE ASPECT

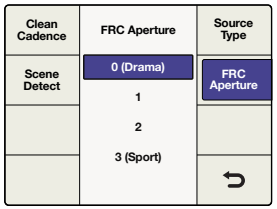
Press the OUT button to select your output settings. In the above illustration the output is set to 1080i50.



Main Menu>Video



Video>Advanced



Advanced>FRC Aperture

Standards Conversion

Standards Conversion, also known as Frame Rate Conversion, is the process of converting one video frame rate another, such as converting NTSC at 59.94 fps to PAL at 50 fps. The powerful Teranex linear interpolation algorithm analyzes pixels between and within frames, calculating new pixels in real time to create the new output frame rate. In this example 1080i59.94 video is converted to 1080i50 via SDI with embedded audio on the Teranex 2D or 3D.

Power your Teranex Processor and connect your inputs and outputs.

Setting your Input

Step 1. Press the IN button on the control panel and select SDI video. Teranex will display the input video on the LCD, automatically detect the input format and illuminate the corresponding buttons.

Step 2. Select EMBED as the audio input format.

Setting your Output

Step 1. Press the OUT button on the control panel. On the Teranex 2D, all output buttons will be illuminated blue. On the Teranex 3D, the EMBED audio button will be blue. Select the AES or ANLG button. AES/EBU and analog audio outputs share the XLR connectors.

Step 2. Press the 1080 button. The button will illuminate green. Select the I button for interlaced output and the 50 button to set the frame rate. These buttons will also illuminate green.

Step 3. Using the soft menu buttons, select Change. The output video is now displayed on the LCD and sent to all output connectors. The buttons will also illuminate blue to confirm your settings.

Setting your Frame Rate Conversion Aperture

When converting frame rates you'll need to set the appropriate frame rate aperture. Select your settings from 0 (Drama) to 3 (Sport) depending on the amount of motion in your video. These settings are adjusted using the soft menu buttons and rotary knob.

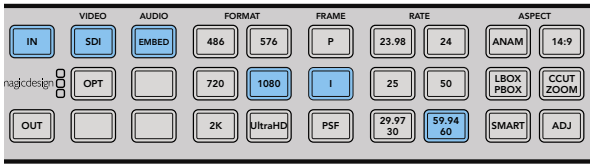
Step 1. Press the HOME button.

Step 2. Using the soft menu buttons, select Video>Advanced>FRC Aperture.

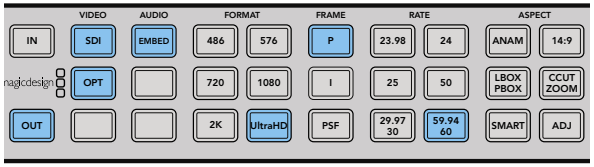
Step 3. Using the rotary knob, select the aperture setting most suited to your video.

Setting your Aspect Ratio

Because this standards conversion maintains an HD video format, only the ADJ aspect ratio button will be available. If converting HD 1080i59.94 to SD 576i50, all aspect ratio settings would be available. For more information on aspect ratio conversion see pages 17 and 67-68. Your Teranex Processor is now ready to convert your 1080i59.94 video to 1080i50.



Pressing the IN button displays the input format on the control panel buttons. In the above illustration, the input format is 1080i59.94 via SDI with embedded audio.



Press the OUT button to select your output settings. In the above illustration the output is set to Ultra HD 2160p59.94.

Up Conversion to Ultra HD using Teranex Express

The Teranex Express model supports up conversion to Ultra HD and down conversion from Ultra HD. Teranex Express features 12G-SDI connections that support multi rate switching to 6G-SDI, 3G-SDI, regular HD-SDI and standard definition SDI. This means you can convert between SD, HD and Ultra HD formats easily.

In this example, 1080i59.94 SDI input video is being converted to Ultra HD 2160p59.94 with embedded audio.

Power your Teranex Express Processor and connect your inputs and outputs.

Setting your Input

Step 1. Press the IN button on the Teranex Express control panel and select SDI video.Teranex Express will automatically detect the input format, display the input video on the LCD and illuminate the corresponding buttons.

Step 2. EMBED will be illuminated as the audio input type.

Setting your Output

Step 1. Press the OUT button on the control panel. On the Teranex Express, the SDI and the EMBED audio buttons will be illuminated blue. If the optional optical fiber module is installed, the OPT button will also be blue.

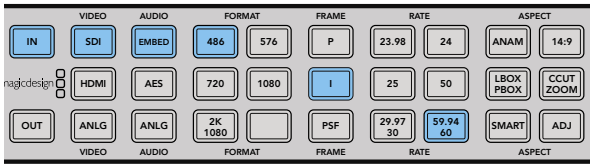
Step 2. Press the UltraHD button. Select the P button for progressive output, and the 59.94/60 button to select your frame rate. The format, frame and rate buttons are now illuminated green, ready for you to accept your conversion set up or make changes.

Step 3. Using the soft menu buttons, select Change. The output video is now displayed on the LCD and sent to all output connectors. The buttons will also illuminate blue to confirm your settings.

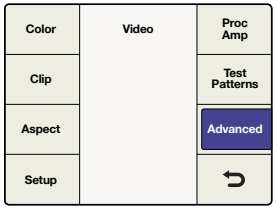
Setting your Aspect Ratio

Because this conversion maintains a 16:9 aspect ratio, no aspect ratio buttons will be illuminated.

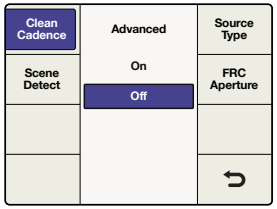
Your Teranex Processor is now ready to up convert your HD video to a 12Gb/s UltraHD single link output via OUT A. If you need dual link 6Gb/s output instead, select this mode via the Dual Link Output menu and use outputs A and B for 6 Gb/s dual link UltraHD connections.



Cadence Removal is applied automatically when converting from an NTSC frame rate to a film frame rate. For example, 59.94fps to 23.98fps.



Main Menu>Video
Menu>Advanced



Advanced
Menu>Clean Cadence

Cadence Removal

Cadence Removal involves the removal of the 3:2 pulldown sequence. 3:2 pulldown is applied when a telecine transfers film at 24 frames per second to video at 59.94 fields per second. The Teranex 2D and 3D will remove cadence automatically when converting video with a 3:2 pulldown to 24 frames per second.

Clean Cadence

Clean Cadence in the Teranex 2D and 3D removes broken, non standard and mixed cadences and creates a clean 3:2 pulldown. A 3:2 cadence is found in 59.94 program material, so Clean Cadence is only available when working with 59.94 frame rates. In this example, we will perform a cross conversion to clean the cadence on a 1080i59.94 video signal via SDI with embedded audio. For more information on Clean Cadence settings, see page 21.

Power your Teranex and connect your inputs and outputs.

Setting your Input

Step 1. Press the IN button on the control panel and select SDI video. Teranex will display the input video on the LCD, automatically detect the input format and illuminate the corresponding buttons.

Step 2. Select EMBED as the audio input format.

Setting your Output

Step 1. Press the OUT button on the control panel. All active video output buttons are illuminated blue.

Step 2. Press the 1080 button. The button is now illuminated green. Select the I button for interlaced output and the 59.94/60 button to set the frame rate. These buttons will also illuminate green.

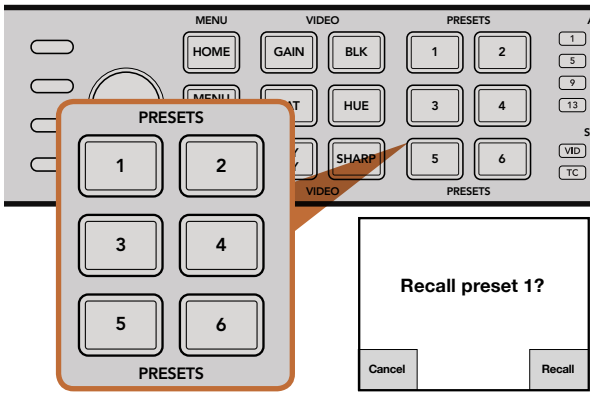
Step 3. Using the soft menu buttons, select Change. The output video is now displayed on the LCD and sent to all output connectors. The buttons will also illuminate blue to confirm your settings.

Step 4. In this example aspect ratio is locked to 16:9. However, if you wish to adjust it manually press the ADJ button and adjust your aspect ratio settings using the soft menu buttons and LCD.

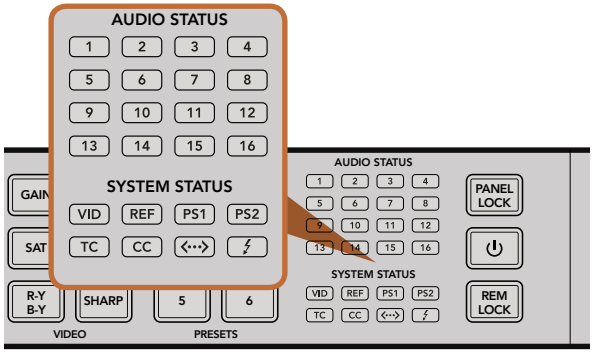
Step 5. Press the HOME menu button, then select Video>Advanced>Clean Cadence. Use the rotary knob or soft button to set Clean Cadence to On. The 1080i59.94 output format will now contain a clean 3:2 cadence. Remember to set Clean Cadence to Off after completing your conversion.

Setting your Aspect Ratio

The ADJ adjustable aspect ratio button is available for custom aspect ratio settings. For more information on aspect ratio conversion see pages 17 and 67-68. Your video output will now have a clean cadence applied.



The Preset buttons are used to easily save and recall conversion settings.



Status LEDs are located on the right side of the control panel.

Presets

Use the six Preset buttons to save and recall your conversion settings.

To SAVE a preset:

HOLD the desired preset button for three seconds. The button flashes to indicate the Preset was saved and remains illuminated until a setting is adjusted.

To RECALL a preset:

Press the desired preset button and select Recall using the soft menu button. Once recalled, the preset button will illuminate until settings are changed. Depending on the preset settings, recalling a preset may momentarily disrupt the output video and audio. An example would be a format conversion preset. A preset that only changes Proc Amp or Aspect Ratio settings will not typically cause a loss of output. Be sure to test your presets prior to using them.

Audio and System Status LEDs

While performing your conversions, keep an eye on the Status LEDs. Illuminated LEDs display signals and communications that are present. For example, indicators tell you which channels contain audio, what power connections are being used, if an external reference signal is present and more. The maximum number of channels supported for each audio type is as follows:

Audio Type	Teranex 2D	Teranex 3D	Teranex Express
Embedded	16	16	16
AES/EBU	8	4	0
Analog	4	2	0

System Status LEDs indicate the following:

VID Input video is present

REF External Reference is selected and External Reference Input is present

PS1 Power Supply 1 is operational

PS2 Power Supply 2 is operational (not applicable to Teranex Express)

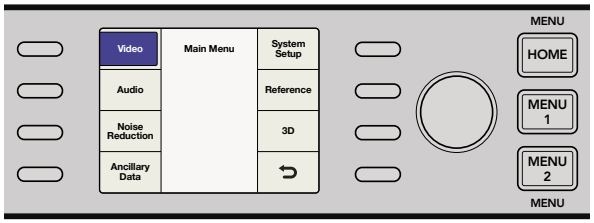
TC Timecode is present in input or output video

CC Closed Captions are present in input or output video

<--> Ethernet communication is present

ϟ Thunderbolt™ communication is present (not applicable to Teranex Express)

The audio, timecode, and close caption status lights show the presence of these parameters in either the input or output video, depending on the selection of IN or OUT.



LCD Menu

The LCD menu is controlled by 8 "soft buttons" used to make your selections. The 8 buttons are called "soft buttons" because their function changes with each menu displayed.

The rotary knob adjusts parameter values by turning clockwise or counterclockwise. If a parameter "default" setting exists, press the rotary knob to quickly reset it.

Home Button

The **HOME** button toggles the LCD between the video display and the main menu.

Menu 1 and Menu 2 Buttons

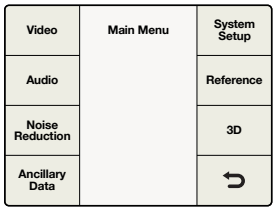
These buttons save shortcuts to frequently used menu pages and settings.

To store a menu page:

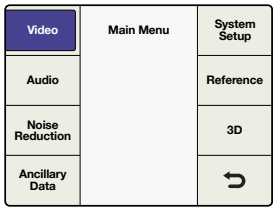
Step 1. Navigate to the menu page you want to save.

Step 2. Press and hold MENU 1 or MENU 2 for 3 seconds.

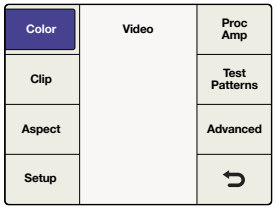
The button will illuminate to indicate a saved page. Thereafter, when the button is pressed, the LCD will switch directly to the saved page.



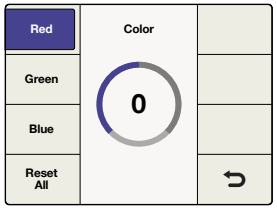
Main Menu



Main Menu>Video



Main Menu>Video Menu



Main Menu>Video Menu

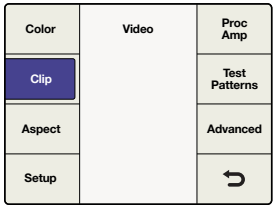
Video Menu Settings

The Video Menu controls settings that adjust your video output, such as color, clipping, aspect ratio and more.

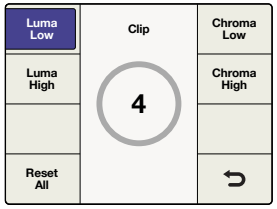
Color

To adjust your Red, Green and Blue Gain settings, turn the rotary knob on each color channel.

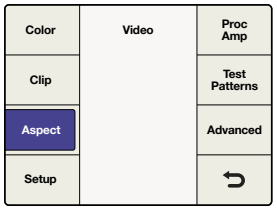
- The Range of each color control is -200 to +200.
- The default is 0.



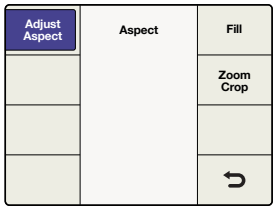
Video Menu>Clip



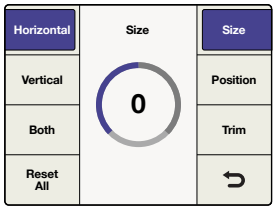
Clip Menu



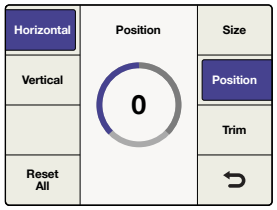
Video Menu>Aspect Menu



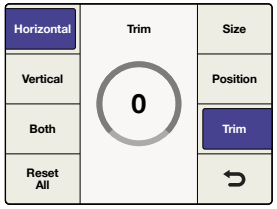
Aspect Menu



Horizontal>Size



Horizontal>Position



Horizontal>Trim

Clip

To adjust luminance and chrominance clipping on your output video, go to Main Menu>Video>Clip. Adjust high and low ranges using the rotary knob.

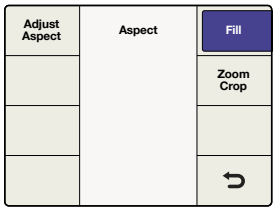
Aspect

To adjust the aspect ratio settings of your Teranex output video, go to Main Menu>Video>Aspect>Adjust Aspect, or simply press the ADJ button in the front panel. FILL defines a color for the letterbox or pillar box bars.

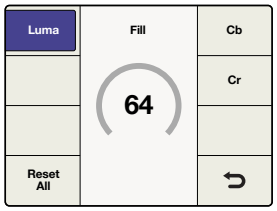
Adjust Aspect

To customize the aspect ratio size, position and trim settings, use the soft menu buttons and rotary knob.

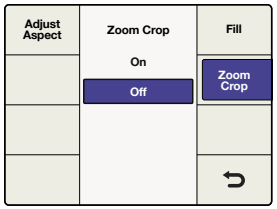
- **Size** – The Size setting adjusts the horizontal and/or vertical image size. The range is approximately -50 to +200 percent.
- **Position** – Position allows you to move the input image within the output frame. The range of adjustment is dependent on the current image size.
- **Trim** – Trim masks the edges of your input image horizontally and/or vertically.
- **Horizontal** – Used for horizontal sizing, positioning and trimming.
- **Vertical** – Used for vertical sizing, positioning and trimming.
- **Both** – Links horizontal and vertical controls together. For example, when changing the input image size, linking both controls maintains the proper aspect ratio.
- **Reset All** – Press to return all settings to their default values.



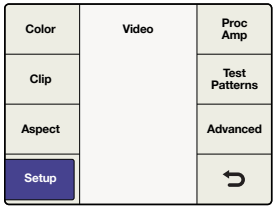
Aspect Menu>Aspect Fill



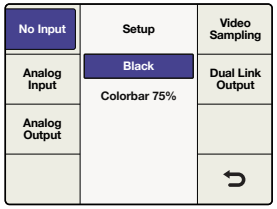
Aspect Fill>Luma



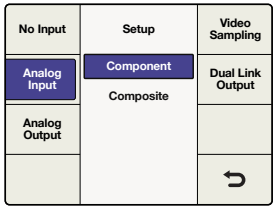
Aspect Menu>Zoom/Crop



Video Menu>Setup



Setup Menu>No Input



Setup Menu>Analog Input

Aspect Fill

To define the color of the bars used in pillarbox and letterbox aspect ratios, adjust the Luminance, and Cb and Cr chroma values using the rotary knob.

Zoom/Crop

Zoom/Crop is used to mask potential video disturbances that may appear at the top, bottom, left or right edges of your source image. This is performed by trimming your conversion slightly. Turning Zoom/Crop on will instantly zoom the converted image vertically by 3 lines and horizontally by 3 pixels, then crop the image by the same amount. Zoom/Crop will not effect your adjustable aspect ratio settings.

Video Setup Menu

The Video Setup menu lets you select your analog video input and output. You can also set colorbars or black video to be output when no input video is detected.

No Input Menu

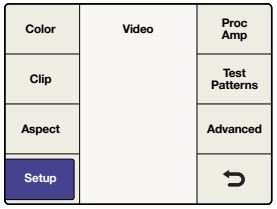
Use this menu to select Black or Colorbars to be output when no video is detected. The default setting is Black.

Analog Input Video Setup Menu

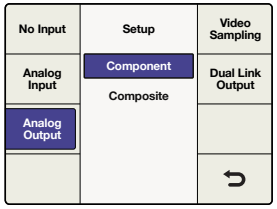
In the Teranex 2D and 3D Processors, this menu lets you set the analog video input type.

- Component – Sets the analog input BNC connections as component Y, R-Y and B-Y.
- Composite – Sets the analog Y/NTSC/PAL input BNC connector as composite.
- The default setting is Component.

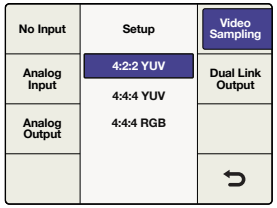
Teranex Processor Settings



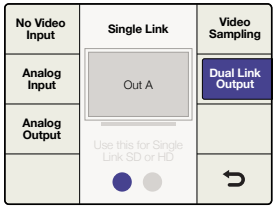
Video Menu>Setup



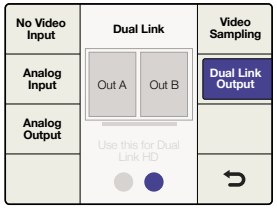
Setup Menu>Analog Output



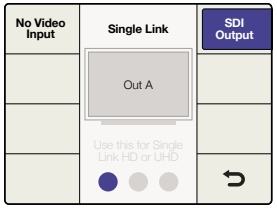
Setup Menu>Video Sampling



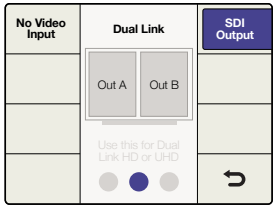
Video Menu>Setup>Single Link Output



Video Menu>Setup>Dual Link Output



Video Menu>Setup>SDI Output>Single Link



Video Menu>Setup>SDI Output>Dual Link

Analog Output Video Setup Menu

In the Teranex 2D and 3D Processors, this menu lets you set the analog video output type.

- **Component** – Sets the analog output BNC connections as component Y, R-Y and B-Y.
- **Composite** – Sets the analog Y/NTSC/PAL output BNC connector as composite.
- The default setting is Component.

Video Sampling Menu (for Teranex 3D Processor only)

The Output Sampling menu allows selection of the following sampling types for the Teranex 3D Processor.

- **4:2:2 – YUV**
- **4:4:4 – YUV**
- **4:4:4 – RGB**

Dual Link Output Menu (for Teranex 3D Processor only)

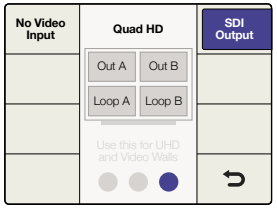
This menu allows you to select between Single Link or HD Dual Link Outputs. Press the Dual Link Output button, or use the front panel knob to toggle between the Single Link and Dual Link output types.

- **Single Link SDI** supports data rates from 270 Mb/s to 3 Gb/s. In Single Link mode, the Teranex 3D provides redundant SDI outputs on Outputs A and B.
- **Dual Link SDI** supports Level B 1080p at 3 Gb/s (2x 1.5 Gb/s) on SDI Outputs A and B. You may use the Video Sampling Menu to choose between 4:2:2 YUV, 4:4:4 YUV and 4:4:4 RGB.

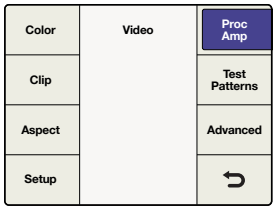
SDI Output Menu (for Teranex Express Processor only)

This menu lets you select between single link, dual link or quad HD outputs for your chosen output format. Press the SDI Output button, or use the front panel knob to toggle between Single Link, Dual Link and Quad HD SDI outputs.

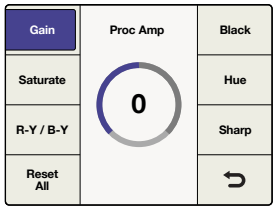
- **Single Link SDI** supports SDI data rates from 270 Mb/s to 12Gb/s. Output A supports single link outputs up to 12Gb/s, while Output B supports single link outputs up to 6Gb/s.
- **Dual Link SDI** supports level B 3G (2x 1.5Gb/s), 6G (2x 3Gb/s), and 12G (2x 6Gb/s) video formats on SDI Outputs A and B.



Video Menu>Setup>SDI Output>Quad HD



Video Menu>Proc Amp



Proc Amp Menu>Gain

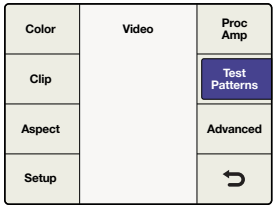
- **Quad HD SDI** in the Teranex Express supports Ultra HD output formats in the square division method as outlined in SMPTE 435-1 (4x1080p). To provide the required four SDI outputs, Teranex Express utilizes the two SDI outputs and repurposes the two SDI Input Loop connectors as outputs. The quad HD outputs are assigned as follows:
  - SDI Output A: Sub image 1
  - SDI Output B: Sub image 2
  - SDI Input Loop A: Sub image 3
  - SDI Input Loop B: Sub image 4

Proc Amp Menu Settings

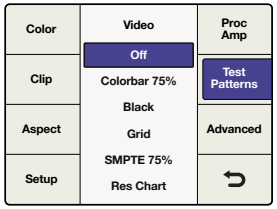
Use the Proc Amp Menu to adjust gain, saturation, hue, sharpness and more. The Proc Amp Menu is accessed via the Video menu. A quicker way to reach this menu is by pressing one of the Proc Amp Video buttons on the control panel. Turn the rotary knob to adjust your settings.

After adjustment, the associated button will illuminate white to indicate a non-default setting. To reset to its default setting, select the parameter via the Proc Amp Menu or control panel button and then push the rotary knob. To easily return all parameters to their default settings, go to the Proc Amp Menu and select **Reset All.**

- **Gain** – Range: -60 to +60. Default: 0
- **Saturate** (Saturation) – Range: -60 to +60. Default: 0
- **Black** – Range: -30 to +30. Default: 0
- **Hue** – Range: -179 to +180. Default: 0 degrees
- **R-Y and B-Y** – Range: -200 to +200. Default: 0
- **Sharp** (Sharpness) – Range: -50 to +50. Default: 0
- **Reset All** – Resets all Proc Amp parameters to their default values



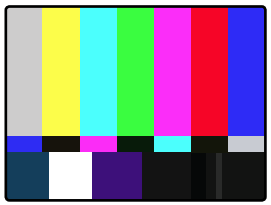
Video Menu>Test Patterns



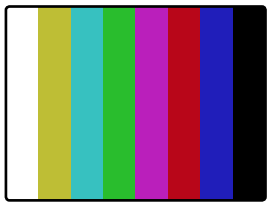
Test Patterns Menu

Test Patterns Menu

The internal test signal generator provides a Blackburst output and test patterns. You can add audio test tones via Audio Mapping in the Audio Main Menu. For more information on audio mapping see page 23.

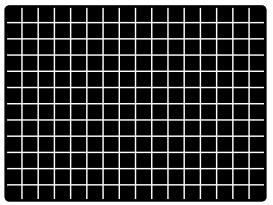


SMPTE 75%.



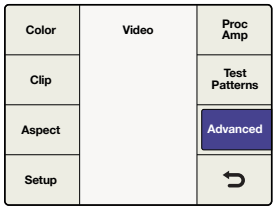
Colorbar 75%.

Res Chart.

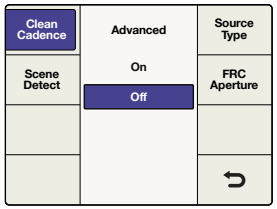


Grid.

Above are test patterns available via the Video/Test Patterns menu.



Video Menu>Advanced



Advanced Menu>Clean Cadence

Advanced Menu Settings

The Teranex 2D and 3D provide the following advanced cadence correction features:

Clean Cadence

Creates a clean 3:2 pull down sequence in your 59.94 output video.

Setting Clean Cadence

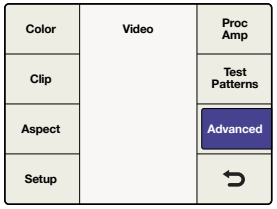
Turn Clean Cadence on or off using the soft menu buttons and rotary knob.

- **On** – Selects the Clean Cadence mode
- **Off** – Selects the Normal video mode
- The default mode is **OFF**

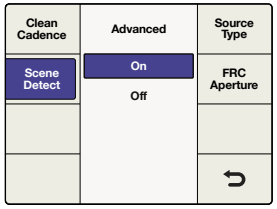
Use the Clean Cadence mode when you are certain your source material was originated with a 3:2 pulldown sequence, such as film transferred to video by a telecine. If Clean Cadence is used on video without 3:2 pulldown, unwanted artifacts may be seen.

Clean Cadence is available for the following format conversions:

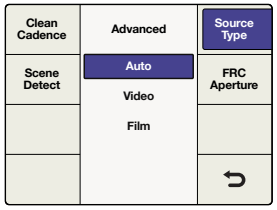
- 486i59.94 to 486i59.94
- 486i59.94 to 1080i59.94
- 1080i59.94 to 486i59.94
- 1080i59.94 to 1080i59.94



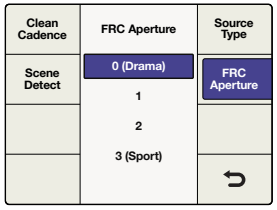
Video Menu>Advanced



Advanced
Menu>Scene Detect



Advanced
Menu>Source Type



Advanced
Menu>FRC Aperture

Scene Detect

Scene change detection minimizes field blending between cuts for a cleaner looking output. This prevents fields from previous scenes mixing with new scenes.

- **On** – Enables Scene Cut Detection
- **Off** – Disables Scene Cut Detection
- The default mode is **O**N

Most video is fine with Scene Detect ON, but some video sequences may "stutter" due to the momentary change in temporal resolution. Video with a text crawl at the bottom of the picture may show this effect. Be sure to turn Scene Detection OFF if you see this "stutter" effect.

Setting Source Type

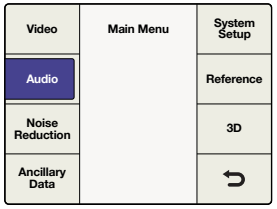
Source Type sets processing based on the type of input video being received. The default mode is **Auto,** but if you want to select Film or Video modes, you can select them in the menu.

- **Auto** – This mode will look for film and video based material and select the appropriate processing algorithm. This mode should be used in most instances.
- **Film** – Select this mode when you're sure the source material contains a 3:2 pulldown cadence.
- **Video** – Select this mode when you're sure the source material does not contain a 3:2 pulldown cadence.

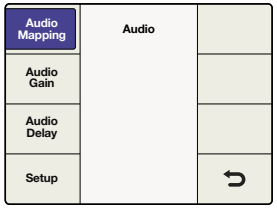
Frame Rate Conversion Aperture

FRC Aperture adjusts processing based on the amount of motion in your source image.

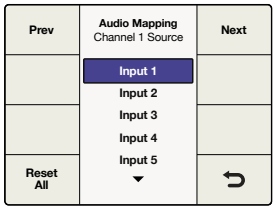
A setting of 0 is typically used for dramatic scenes with little motion and will produce a sharper image with potential for judder in motion areas. A setting of 3 is typically used for scenes with faster motion, such as sporting events, and produces a softer image with less motion judder.



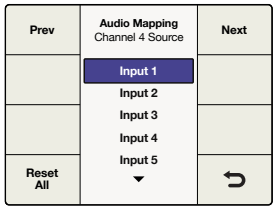
Main Menu>Audio



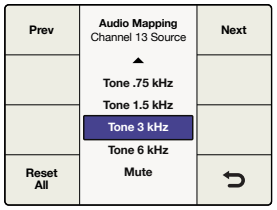
Audio Menu>Audio Mapping



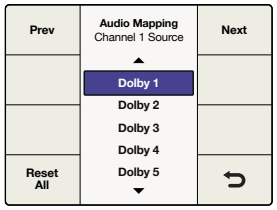
Audio Mapping Menu



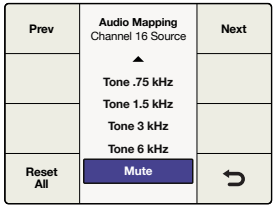
Input 1 mapped to Output 4



3 kHz tone mapped to Output 13



Dolby 1 mapped to Output 1



Output 16 is muted

Above are examples of audio mapping choices.

Audio Menu Settings

The Audio menu permits mapping of input audio channels, offers control of audio gain and delay and provides access to certain setup parameters.

Audio Mapping

The Audio Mapping menu allows you to map incoming audio channels, decoded Dolby channels or internally-generated test tones to any output channel. You may also mute individual audio channels.

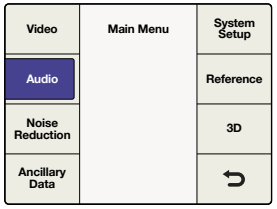
Step 1. On the front panel, select your audio input source, either EMBED, AES or ANLG.

Step 2. Go to the Audio Mapping menu, then press the Prev or Next buttons to select the desired output channel. The current audio input associated with the selected output will be displayed in the drop-down list as you step through the output channels.

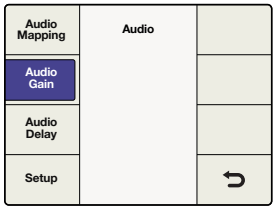
Step 3. Once the desired output channel has been selected, turn the knob to select the input source to map to that output channel. As you turn the knob, you will progress through each group of sources:

- **Inputs 1-16** – This is a list of available audio input channels from your selected input audio source: SDI, AES, or Analog.
- **Dolby Decoded Channels** – If the optional Blackmagic Dolby decoder is installed, Dolby D (Dolby 1-6) or Dolby E (Dolby 1-8) will appear in the list.
- **Dolby Encoded Channels** – If the optional Blackmagic Dolby D or E encoder is installed, Encode 1 and Encode 2 will appear in the list.
- **Test Tones** – Select from internally generated tones: 0.75 kHz, 1.5 kHz, 3 kHz, 6 kHz.
- **Mute** – Mutes the specific output channel.

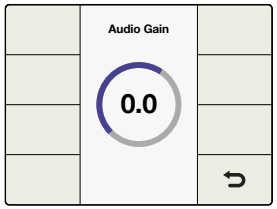
Step 4. Pressing the knob will return the current output channel to its default input. Pressing the **Reset All** button will return all output channels to their default settings, i.e. Input 1 to Output 1, Input 2 to Output 2, etc.



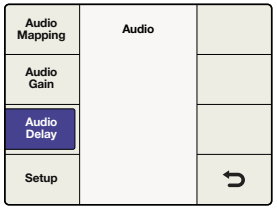
Main Menu>Audio



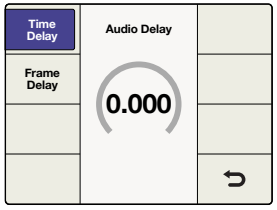
Audio Menu>Audio Gain



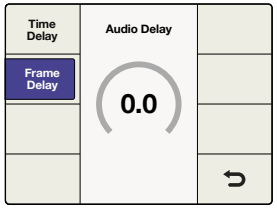
Turn knob to adjust gain



Audio Menu>Audio Delay



Turn knob to adjust
Time Delay



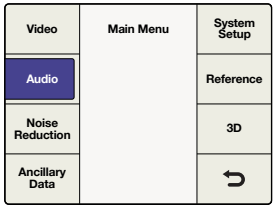
Turn knob to adjust
Frame Delay

Audio Gain

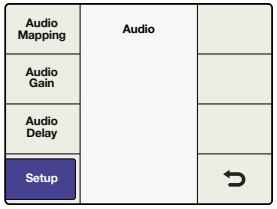
The Audio Gain control allows you to vary the output from -32 to +16 dB in 0.1 dB increments. Turn the knob to adjust. Pressing the knob will return the Gain to zero.

Audio Delay

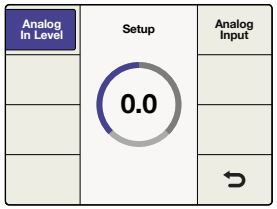
The maximum audio delay is 1 second. In the menu, you may chose between a Time Delay or Frame Delay adjustment. Time is resolved to millisecond resolution, while frame delay is expressed in one-half frame increments. In addition, audio may be advanced by up to 1 frame. Turn the knob to adjust. Pressing the knob will return the Delay to zero.



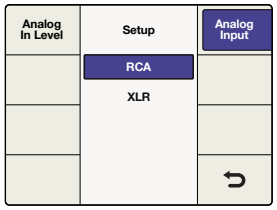
Main Menu>Audio



Audio Menu>Setup



Setup Menu>Analog In Level



Setup Menu>Analog Input

Audio Setup Menu

The Audio Setup menu in the Teranex 2D and 3D Processors includes analog audio input reference level adjustment and analog input type selection.

Analog In Level

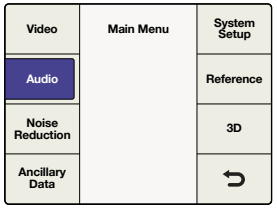
Teranex 2D and 3D Processors are factory set to analog audio input reference levels of +4dBu = -20dBFS. If you are using a different analog input reference level, you may adjust the Level control to compensate. Please note that this setting will not affect the RCA audio input level.

Turn the knob to adjust. The range of adjustment is -12 to +12dB. Pressing the knob will return the level to zero.

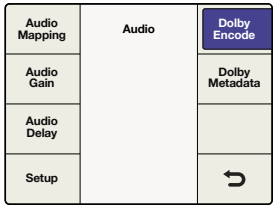
Analog Input Menu

The Audio Setup menu lets you select between the analog audio inputs. The choices for Teranex 3D are RCA Phono or XLR. The choices for Teranex 2D are RCA Phono or DB25.

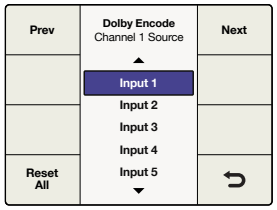
- **RCA** – Stereo RCA Phono connectors (L/R) - Default for the Teranex 2D and 3D Processors.
- **DB25 (Teranex 2D)** – Balanced analog audio input via the DB25 connector.
- **XLR (Teranex 3D)** – Balanced analog audio input via the XLR connectors.



Main Menu>Audio



Audio Menu>Dolby Encode



Select sources for Dolby encoder channels

When a Dolby Digital or Dolby E encoder is installed in the Teranex 3D, two additional selections will appear in the Audio Menu:

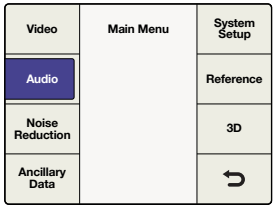
Dolby Encode

The Dolby Encode menu will allow you to select your source for each channel to be encoded. For Dolby Digital encoding, you may select up to 6 channels to be encoded. For Dolby E, you may select up to 8 channels.

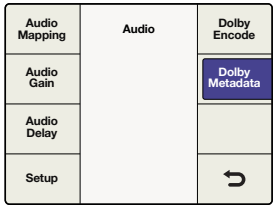
You may select from discrete audio channels, Dolby decoded channels (if a Dolby decoder is also installed), test tones or mute. This menu is similar to the Audio Mapping menu, but you should understand that the sources selected in the Dolby Encode menu will be mapped to two Dolby encoded channels, which may later be mapped to your output.

As an example, let's say that you need to encode input channels 3 through 10 to Dolby E and you want your Teranex to provide Dolby E encoded audio outputs on SDI channels 9 and 10.

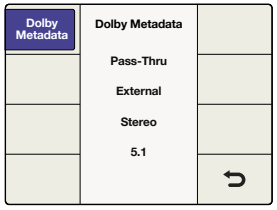
- First, you would use the Dolby Encode menu to route Input 3 as the source for Dolby Encode Channel 1.
- Press the Next button on the menu to move to Dolby Encode Channel 2 and route Input 4 to it. Continue this process until you have routed the remaining input channels 5-10 to Encoder channels 3-8.
- The 8 input sources routed to the Dolby E encoder module will result in two encoded output channels. Using the Audio Mapping menu on page 23, you would map the two Dolby E encoded channels, which we call Encode 1 and Encode 2, to your SDI output channels 9 and 10.



Main Menu>Audio



Audio Menu>Dolby Metadata



Dolby Metadata Menu

Dolby Metadata

Dolby Metadata describes the encoded audio and conveys information to control downstream equipment. Metadata is usually carried in the Dolby Digital or Dolby E bitstream, but can also be carried as a serial data stream between Dolby E and/or Dolby Digital equipment.

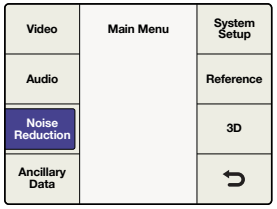
In the Teranex 3D, Dolby Metadata may be derived from incoming Dolby audio, if a Dolby decoder is installed, and may also be input as serial data via the 9-pin Dolby Metadata connector on the rear of the Teranex 3D. You may also generate your own metadata in the Teranex 3D by using one of the two commonly used configurations provided in the Dolby Metadata menu, Stereo and 5.1. See the configurations assigned by each in the table below. The variations between the two configurations are shown by bold text.

The Dolby Metadata menu provides for:

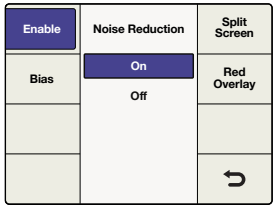
- **Pass-Thru** - If your Teranex 3D also contains a Dolby Decoder module, any metadata derived from the decoded Dolby stream will be reinserted in the Dolby encoded output.
- **External** - To add metadata from an external metadata generator to your Dolby encoded output, connect the generator to the 9-pin Dolby Metadata connector on the rear panel.
- **Stereo** - Pre-configured Metadata for Stereo output.
- **5.1** - Pre-configured Metadata for 5.1 encoding, typically used with Dolby Digital encoding.

Metadata Parameter	Stereo	5.1
Program Configuration	**4x2**	**5.1+2**
Program Description Text	(Not programmed)	(Not programmed)
Frame Rate	(Set by Conversion)	(Set by Conversion)
Bitstream Mode	Complete Main	Complete Main
Channel Mode	**2/0(L/R)**	**3/2(L,C,R,Ls,Rs)**
Center Downmix Level	-3 dB	-3 dB
Surround Downmix Level	-3 dB	-3 dB
Dolby Surround Mode	Not Indicated	Not Indicated
LFE Channel	**LFE Off**	**LFE On**
Dialogue Normalization	27	27
Audio Production Information	No	No
Mix Level	0	0

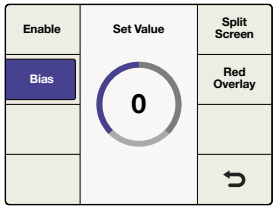
Metadata Parameter	Stereo	5.1
Room Type	Not Indicated	Not Indicated
Copyright Bit	Yes	Yes
Original Bitstream	Yes	Yes
Extended Bitstream Info 1	Yes	Yes
Preferred Stereo Downmix	Not Indicated	Not Indicated
Lt/Rt Center Downmix Level	-3 dB	-3 dB
Lt/Rt Surround Downmix Level	-3 dB	-3 dB
Lo/Ro Center Downmix Level	-3 dB	-3 dB
Lo/Ro Surround Downmix Level	-4.5 dB	-4.5 dB
Extended Bitstream Info 2	Yes	Yes
Dolby Surround EX Mode	Not Indicated	Not Indicated
Dolby Headphone	Not Indicated	Not Indicated
A/D Converter Type	Standard	Standard
DC Filter	Enabled	Enabled
Lowpass Filter	Enabled	Enabled
LFE Lowpass Filter	**Disabled**	**Enabled**
Surround Phase Shift	**Disabled**	**Enabled**
Surround 3 dB Attenuation	**Disabled**	**Enabled**
RF Mode Compression Info	None	None
RF Mode Compression Profile	Film Standard	Film Standard
Line Mode Compression Info	None	None
Line Mode Compression Profile	Film Standard	Film Standard



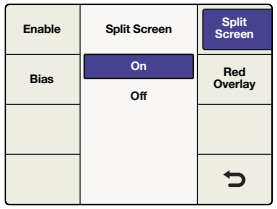
Main Menu>Noise Reduction



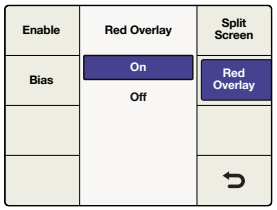
Noise Reduction Menu



Noise Reduction Menu>Bias



Noise Reduction Menu>Split Screen



Noise Reduction Menu>Red Overlay

The red overlay helps to show which parts of the image have temporal recursive noise reduction applied.

Noise Reduction Menu Settings

The Noise Reduction algorithm in the Teranex 2D and 3D Processors looks at each pixel in an image and processes it based on motion and types of noise. Spatial noise reduction is applied to still areas of the picture and temporal recursive noise reduction is applied to moving areas. Using both types provides higher quality results.

To enable noise reduction, go to Main Menu>Noise Reduction and select ON using the soft menu buttons and rotary knob.

Please note that Noise Reduction is not available while performing frame rate conversions, such as 486i59.94 to 576i50 (NTSC to PAL) or 1080i59.94 to 1080i50.

Bias

Adjust the Bias level to set the amount of noise reduction. The higher the Bias value, the more aggressive the noise reduction.

- The Bias range is -6 to +6.
- The default value is 0.

Split Screen On/Off

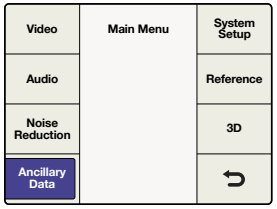
Split Screen divides the LCD, one half with noise reduction and one half without. This lets you compare your noise reduction settings to the original image.

To enable Split Screen, go to Main Menu>Noise Reduction>Split Screen and select ON using the soft menu buttons and rotary knob.

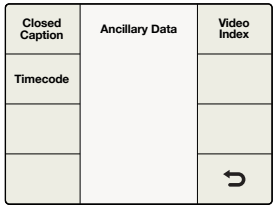
Red Overlay On/Off

In Red Overlay mode, pixels in motion will be colored red. Temporal recursive noise reduction will NOT be applied to these pixels. Turning the Red Overlay On will also allow you to see the effect of noise reduction Bias adjustments.

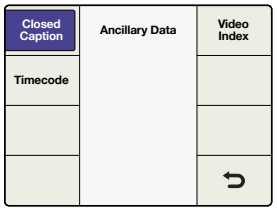
To enable Red Overlay, go to Main Menu>Noise Reduction>Red Overlay and select ON using the soft menu buttons and the rotary knob.



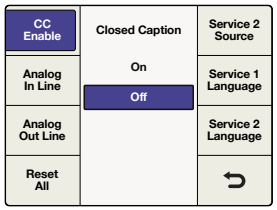
Main Menu>Ancillary Data



Ancillary Data Menu



Ancillary Data Menu>Closed Caption



Closed Caption Menu>CC Enable

Ancillary Data Menu Settings

The Ancillary Data menu provides access to Closed Caption, Timecode and Video Index features.

Closed Caption Menu

The Closed Caption menu lets you configure closed captions for CEA-608B and CEA-708B standards. CEA-608B is the closed captioning reference standard for SD NTSC analog and SD-SDI. Captions are encoded on line 21 of the vertical blanking interval. CEA-708B is the standard for HD-SDI, typically encoding captions on line 9.

The Teranex Processor automatically detects digital captions in both SD and HD video formats. If digital captions are not present in an SD signal, the processor will look for analog captions on line 21. If the program has captions on line 21 but you're not seeing them, set the Analog In Line menu to look for captions on lines 20 or 22.

Closed caption processing also supports up conversion of 608 CC2 and CC3 secondary language services to 708 Service 2 (S2) via the Service 2 Source menu.

The Closed Captioning menu offers the following selections and adjustments:

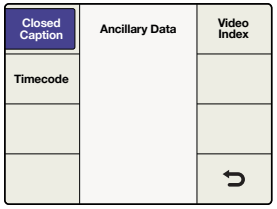
- **CC Enable** – Turns Closed Captions ON or OFF in the output video.
- **Analog In Line** – Allows you to select the Analog Closed Caption Input Line.
- **Analog Out Line** – Allows you to select the Analog Closed Caption Output Line.
- **Service 2 Source** – Allows you to select between CC2 and CC3 as the Closed Caption Service 2 Source.
- **Service 1 Language** – Allows you to select the language used for Service 1.
- **Service 2 Language** – Allows you to select the language used for Service 2.

CC Enable

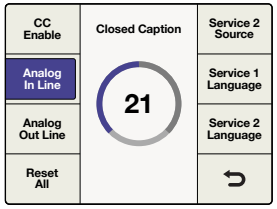
CC Enable is OFF by default. To enable closed captioning, go to Main Menu>Ancillary Data>Closed Caption>CC Enable and select ON using the soft menu buttons or rotary knob.

Disabling captions may be helpful if the incoming closed caption data is incorrect or corrupt.

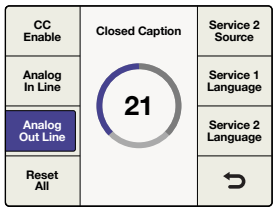
The CC status LED on the front panel is tied to the IN or OUT selection. When IN is selected, the CC status LED will illuminate when closed captioning is detected in the input video. When OUT is selected, the CC status LED will illuminate when closed captioning data is present in the output video.



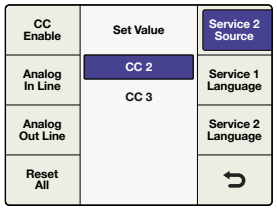
Ancillary Data Menu>Closed Caption



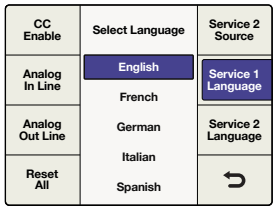
Closed Caption Menu> Analog In Line



Closed Caption Menu> Analog Out Line



Closed Caption Menu> Service 2 Source



Closed Caption Menu> Service 1 Language

Analog In Line

Analog In Line identifies the line on which closed caption information is located in the incoming video. This menu applies only to sources with analog closed captions. If your captions are digital, they will be automatically detected.

- The range of adjustment is lines 20 to 22.
- The default setting is line 21.

Analog Out Line

Analog Out Line identifies the line on which closed caption information is located in the output video. This menu applies only to analog SD output.

- The range of adjustment is lines 20 to 22.
- The default setting is line 21.

Service 2 Source

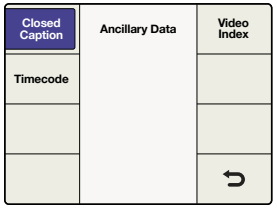
Service 2 Source allows you to select CEA-608 CC2 or CC3 for up converting to CEA-708, Service 2.

- The choices are CC2 and CC3.
- The default setting is CC2.

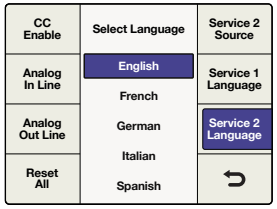
Service 1 Language

Service 1 Language is used to select the language for that Service in CEA-708 closed captions.

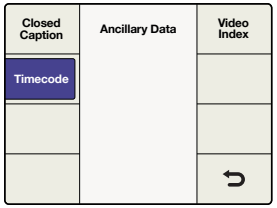
- The language choices are:
  - English
  - French
  - German
  - Italian
  - Spanish
- The default language is English.



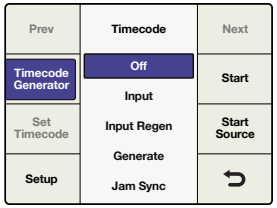
Ancillary Data Menu>Closed Caption



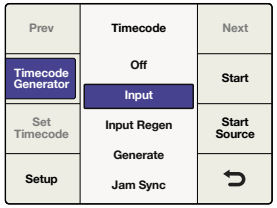
Closed Caption Menu> Service 2 Language



Ancillary Data Menu> Timecode



Timecode Menu



Timecode Generator Menu>Input

Service 2 Language

Service 2 Language is used to select the language for that Service in CEA-708 closed captions.

- The language choices are:
  - English
  - French
  - German
  - Italian
  - Spanish
- The default language is English.

Timecode Menu Settings

Teranex lets you send incoming timecode to the output, strip incoming timecode completely or generate new timecode. Similar to broadcast decks, you can select the desired timecode mode, such as Input Regen and Jam Sync, or set specific timecode data.

To enable timecode processing, go to Main Menu>Ancillary Data>Timecode and choose your desired timecode mode.

Timecode Generator

The Timecode Generator menu lets you choose from four available timecode modes, or disable manual timecode processing.

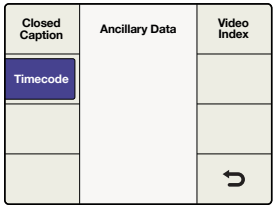
Off No timecode data will be inserted into the output video (default).

Input Select Input mode to feed the input timecode directly to the output. This is useful if you want to preserve your source timecode and your input and output frame rates are the same.

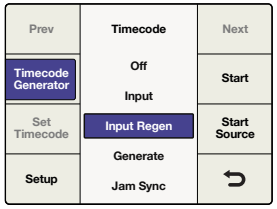
It's important to make sure that the Drop Frame mode in the timecode Setup menu is set to Auto to ensure the output timecode will match the input timecode.

Please note, if you want to ensure the output timecode matches your input timecode, do not use an external reference. The external reference can cause a dropped or duplicated frame in the output, which will affect your timecode count.

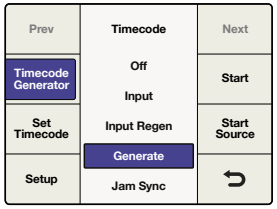
To set the Reference menu to Input, go to Main Menu>Setup>Reference and select Input.



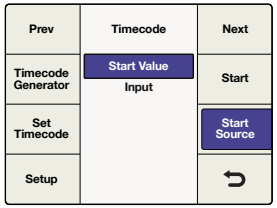
Ancillary Data Menu> Timecode



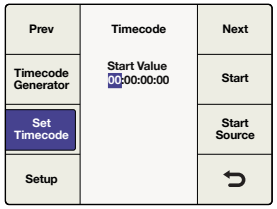
Timecode Menu>Input Regen



Timecode Menu>Generate



Generate>Start Source



Set Timecode Menu. Use the Rotary knob to set your values, and the Previous and Next buttons to move the cursor left and right.

Input Regen

The Input Regen mode synchronizes the input timecode to the output timecode and is often used when performing frame rate conversions, such as1080i50 to 1080i59.94.

Input Regen mode should only be used when your Teranex processor is locked to your input video.

Drop frame and non drop frame modes are both supported in 23.98, 29.97 and 59.94 frame rates. However, in a conversion where the source timecode is drop frame and the output format is non drop frame timecode, the output timecode will be automatically converted to non drop frame.

Generate

The timecode generator will generate free running output timecode appropriate for the selected output format, even if timecode is not present on your video input signal.

Set Timecode

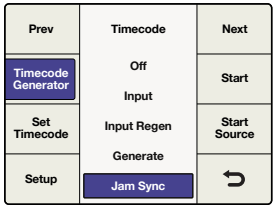
The Set Timecode menu options you will have are determined by the selection you make in the Start Source menu.

Start Source = "Input"

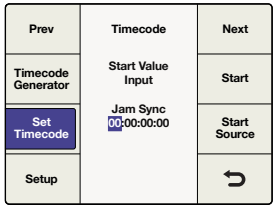
If the Start Source menu is set to "Input," the Set Timecode menu will show "Input" as the Start Value for the generator. When you press the Start button, the generator will capture the current input timecode value and use that value to start outputting free running timecode. If no timecode is present on your input video source, the generator will begin counting at 00:00:00:00.

Start Source = "Start Value"

If the Start Source menu is set to "Start Value," the Set Timecode menu will display an eight-character register that allows the entry of a specific starting value for the generator. Turn the rotary encoder to adjust the timecode generator values and use the Previous and Next buttons to move the cursor left or right. When you press the "Start" button the timecode generator will immediately output timecode from your Start Value entry.



Timecode Menu>Jam Sync



Jam Sync>Set Timecode

Jam Sync

The Jam Sync mode is similar to the Generate mode. However, when you press the "Start" button, Jam Sync mode allows you to hold the output timecode generator until a pre-determined timecode point is reached in your input video, called the Jam Sync value. The Jam Sync value must be entered via the Set Timecode menu.

Set Timecode

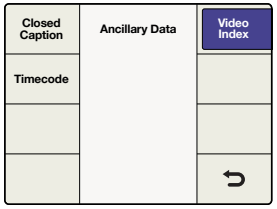
The Set Timecode menu options you will have are determined by the selection you make in the Start Source menu.

Start Source = "Input"

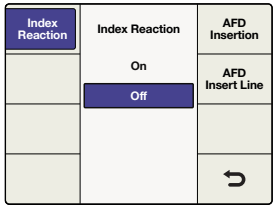
If the Start Source menu is set to "Input," the Set Timecode menu will show "Input" as the Start Value for the timecode generator. When you press the "Start" button, the generator will start looking for a timecode match to the Jam Sync value you have entered. When the match occurs, the generator will use that "Input" timecode as the start value to generate free running output timecode.

Start Source = "Start Value"

If the Start Source menu is set to "Start Value," the Set Timecode menu will display an eight-character register that allows the entry of a specific starting value for the generator. When you press the "Start" button the generator will look for a timecode match to the Jam Sync value you have entered. When the match occurs, the generator will use the start value you entered to generate free running output timecode.



Ancillary Data Menu>
Video Index



Video Index
Menu>Index Reaction

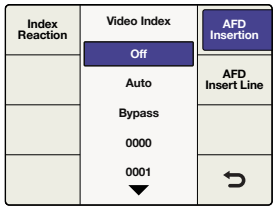
Video Index Menu

The Video Index menu enables or disables reaction to video indexing signals that may be embedded in your source video. The three video indexing modes that are supported are Active Format Description (AFD), Wide Screen Signaling (WSS) and SMPTE RP186.

If the Video Index Mode is turned ON, the Teranex Processor will be set to react to incoming video indexing signals. The processor will automatically scan for the presence of video index packets and will react to them if found. AFD indexing takes precedence over the WSS, which takes precedence over RP186.

- The default setting is Off.

Please note the Processor will not pass or insert WSS or RP186 codes. It will only react to them if they are present on the input.

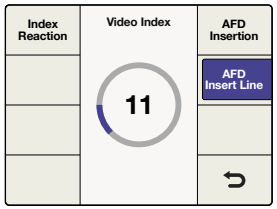


Video Index
Menu>AFD Insertion

AFD Insertion Menu

This menu allows you to select the desired AFD code that will be inserted in the output video. The output line on which the code will be inserted can be selected in the AFD Insert Line menu.

- Settings include:
  - **Off** – No AFD code will be inserted in the output ancillary data space.
  - **Auto** – The appropriate code will be inserted based on the current video output format.
  - **Bypass** – Any code present in the incoming video stream will be passed through to the output.
  - **AFD codes 0000 – 1111** – These codes are manual selections which may be used as needed.
- The default setting is Off.

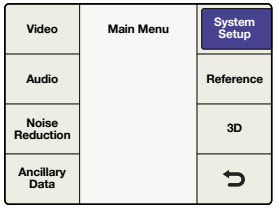


Video Index Menu>AFD
Insert Line

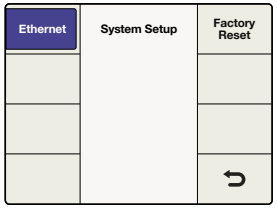
AFD Insert Line Menu

If AFD Insertion is enabled in the AFD Insertion menu above, the AFD Insert Line menu allows you to select the line on which the AFD code will be inserted in the ancillary data space of the output video signal.

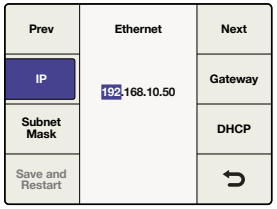
- The range of adjustment is dependent on the current output video format:
  - For SD formats, the range is lines 10 to 19. The default value is line 15.
  - For HD 1080 formats, the range is lines 9 to 20. The default value is line 11.
  - For HD 720 formats, the range is lines 9 to 25. The default value is line 11.
- Press the rotary encoder to go back to the default value.



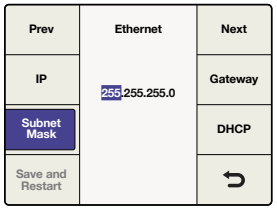
Main Menu>System Setup



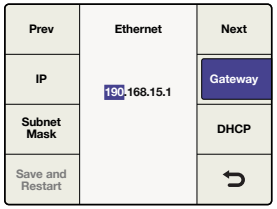
System Setup Menu>Ethernet



System Setup Menu>Ethernet>IP Menu



System Setup Menu>Ethernet>Subnet Mask Menu



System Setup Menu>Ethernet>Gateway Menu

System Setup Menu Settings

The System Setup menu provides access to Ethernet and Factory Reset menus.

Ethernet Setup Menu

The Ethernet setup menu allows you to display the current settings and assign new settings for Static IP address, Subnet address and IP Gateway. This menu also permits you to turn DHCP On or Off.

When DHCP is ON, the IP, Subnet Mask and Gateway menus will display the addresses currently assigned to the chassis by the DHCP server. These values may not be adjusted unless DHCP is OFF.

IP Menu

To set a Static IP Address for the Teranex processor, DHCP must be OFF.

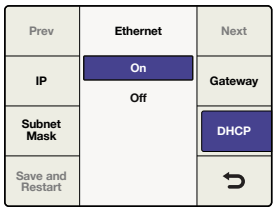
The IP menu will display a four-field register allowing you to enter specific IP address values. Adjust the selection highlighted by the cursor by turning the rotary encoder. Use the Prev and Next buttons to move the cursor to the left or right, respectively. If you change this setting, press the "Back" button, then press the "Save and Restart" button to power cycle the chassis and establish the new setting.

Subnet Mask Menu

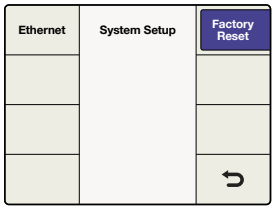
The Subnet Mask menu will display a four-field register allowing you to enter specific values. Adjust the selection highlighted by the cursor by turning the rotary encoder. Use the Prev and Next buttons to move the cursor left or right, respectively. If you change this setting, press the "Back" button, then press the "Save and Restart" button to power cycle the chassis and establish the new setting.

Gateway Menu

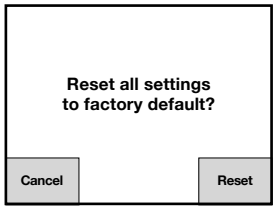
The Gateway menu will display a four-field register allowing you to enter specific values. Adjust the selection highlighted by the cursor by turning the rotary encoder. Use the Prev and Next buttons to move the cursor left or right. To establish new settings, press the "Back" button, then"Save and Restart. Your Teranex will power cycle and apply the new settings.



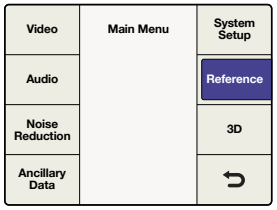
Setup Menu>Ethernet> DHCP Menu



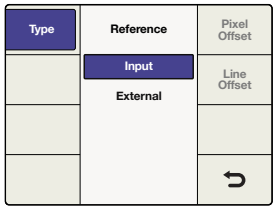
System Setup>Factory Reset



Press Reset to restore factory settings, or Cancel to abort.



Main Menu>Reference



Reference Menu>Type

DHCP Menu

The DHCP menu enables or disables the assignment of an IP address to the chassis using Dynamic Host Configuration Protocol (DHCP). You can press the DHCP soft button or turn the rotary encoder to turn DHCP ON or OFF. If you change this setting, press the "Save and Restart" button to power cycle the chassis and establish the new IP address.

- **ON** – The Teranex Processor will accept an IP address assigned by your network router.
- **OFF** – The previous Static IP address of the unit will be used if one was previously assigned.

If you press the IP button with DHCP ON and see an IP address of 0.0.0.0, this indicates that the processor was unsuccessful in obtaining an IP address from the DHCP server. Please check your Ethernet network connections.

Factory Reset

Select Factory Reset to restore conversion setup settings to their factory defaults. The following settings will not be affected:

- Presets.
- Output video settings, e.g., Format, Frame, Rate.
- Aspect selection; however, any adjustable aspect ratio settings will be reset to their default values.
- Ethernet IP address settings.

Reference Menu Settings

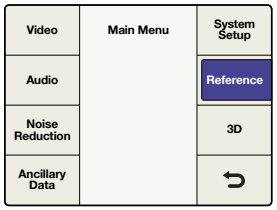
The Reference menu lets you synchronize your video output to an input video source or external reference.

- **Input** – Selects the current input video source as the reference.
- **External** – Selects the external reference (REF) input.

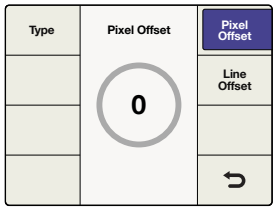
Teranex auto-detects a valid reference source, but it must be compatible with the output format. The table on the following page shows which reference signals are acceptable for each output video format and frame rate.

Reference Signal Compatibility Chart:

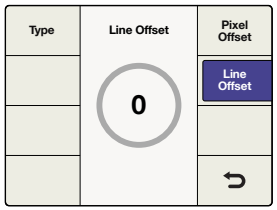
Output Format and Frame Rate	Reference Signal
480i59.94	Blackburst 59.94
576i50	Blackburst 50
720p50	Blackburst 50 or Tri-level Progressive 50 (TRI-P)
720p59.94	Blackburst 59.94 or Tri-level Progressive 59.94 (TRI-P)
1080p23.98	Tri-level Progressive 23 (TRI-P)
1080PsF23.98	Tri-level Progressive 23 (TRI-P)
1080p24	Tri-level Progressive 24 (TRI-P)
1080PsF24	Tri-level Progressive 24 (TRI-P)
1080p25	Blackburst 50 or Tri-level Interlaced 50 (TRI-I)
1080PsF25	Blackburst 50 or Tri-level Interlaced 50 (TRI-I)
1080p29.97	Blackburst 59.94 or Tri-level Interlaced 59.94 (TRI-I)
1080PsF29.97	Blackburst 59.94 or Tri-level Interlaced 59.94 (TRI-I)
1080i50	Blackburst 50 or Tri-level Interlaced 50 (TRI-I)
1080p50	Blackburst 50 or Tri-level Interlaced 50 (TRI-I) or Tri-level Progressive 50 (TRI-P)
1080i59.94	Blackburst 59.94 or Tri-level Interlaced 59.94 (TRI-I)
1080p59.94	Blackburst 59.94 or Tri-level Interlaced 59.94 (TRI-I) or Tri-level Progressive 59.94 (TRI-P)
2K1080p23.98	Tri-level Progressive 23 (TRI-P)
2K1080PsF23.98	Tri-level Progressive 23 (TRI-P)
2K1080p24	Tri-level Progressive 24 (TRI-P)
2K1080PsF24	Tri-level Progressive 24 (TRI-P)
UHD 2160p23.98	Tri-level Progressive 23 (TRI-P)
UHD 2160p24	Tri-level Progressive 24 (TRI-P)
UHD 2160p25	Blackburst 50 or Tri-level Interlaced 50 (TRI-I)
UHD 2160p29.97	Blackburst 59.94 or Tri-level Interlaced 59.94 (TRI-I)



Main Menu>Reference



Reference Menu>Pixel Offset



Reference Menu>Line Offset

Reference Signal Compatibility Chart:

Output Format and Frame Rate	Reference Signal
UHD 2160p50	Blackburst 50 or Tri-level Interlaced 50 (TRI-I) or Tri-level Progressive 50 (TRI-P)
UHD 2160p59.94	Blackburst 59.94 or Tri-level Interlaced 59.94 (TRI-I) or Tri-level Progressive 59.94 (TRI-P)

If External reference is selected and a valid reference signal is detected, the REF Status LED on the front panel will illuminate. If the external reference is removed or lost, the processor will go into a free run condition until reference is restored.

Pixel Offset

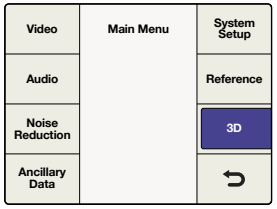
If External has been selected and a valid reference is present, this control will adjust the Pixel timing of the output relative to the supplied external reference.

- The Range is determined by the current output format selection.

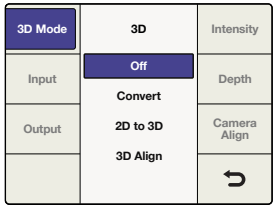
Line Offset

If External has been selected and a valid reference is present, this control will adjust the Line timing of the output relative to the supplied external reference.

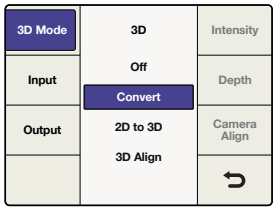
- The Range is determined by the current output format selection.



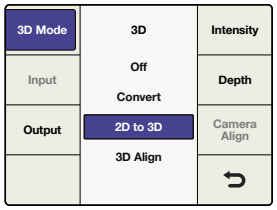
Main Menu>3D



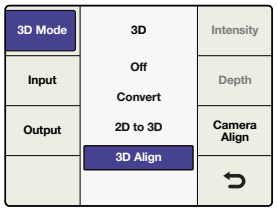
3D Menu>3D Mode



3D Menu>3D Mode>
3D Convert



3D Menu>3D Mode>
2D to 3D



Main Menu>3D>3D Mode>
3D Align

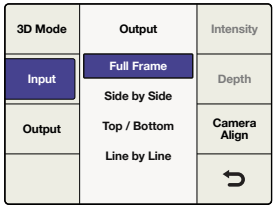
3D Menu Settings

The 3D menu is available only in the Teranex 3D Processor model. This menu enables the dual internal processors of the Teranex 3D Processor for format or frame rate conversion of stereoscopic inputs and for conversion of 2D sources into simulated 3D outputs.

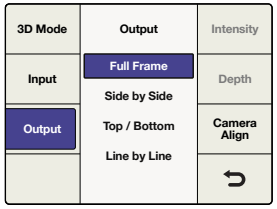
3D Mode

In the 3D Mode menu, "Off" implies normal 2D processing. The following selections are available to enable 3D processing:

- **Convert** – This mode enables processing of stereoscopic left and right eye inputs, which may be input via the SDI or HDMI inputs. This mode will also synchronize the incoming stereoscopic signals, which means that two non-synchronous inputs may be input to the Teranex 3D Processor and the outputs will be synchronized.
  - Connect your Left and Right Eye signals to SDI Input A and B, respectively.
- **2D to 3D** – This mode enables the 2D to 3D conversion algorithm. Any 2D video signal may be converted into a simulated 3D output.
  - If you're using an SDI input, connect your 2D source to SDI Input A.
  - When 2D to 3D is selected, the Intensity and Depth buttons will become available. Descriptions for these settings are provided a bit later in this manual.
- **3D Align** – This mode enables the 3D alignment tools, including image flip, horizontal and vertical positioning, axial rotation and toe-in.
  - Connect your Left and Right Eye signals to SDI Input A and B, respectively.

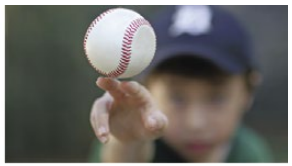


3D Menu>3D Input



3D Menu>3D Output

Full Frame Left Eye



Full Frame Right Eye

Side by Side

Top/Bottom Encoding

Line by Line Encoding

Input

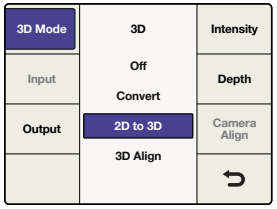
The 3D Input menu allows you to define the input formatting of your 3D source.

- **Full Frame** – Full resolution inputs for left and right eye images on SDI inputs A and B, respectively, or from an HDMI frame packed signal if using the HDMI input.
- **Side by Side** – Decodes a Side by Side encoded input via SDI Input A or the HDMI input.
- **Top/Bottom** – Decodes a Top and Bottom encoded input via SDI Input A or the HDMI input.
- **Line by Line** – Decodes a Line by Line encoded input via SDI Input A or the HDMI input.

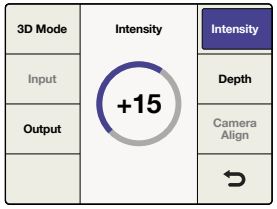
Output

The 3D Output selection determines the output formatting for your 3D image.

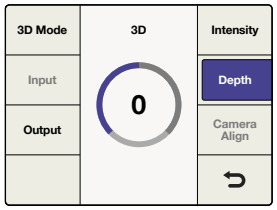
- **Full Frame** – Provides full resolution outputs for left and right eyes on SDI outputs A and B respectively, while simultaneously providing a frame packed signal on the HDMI output.
- Side by Side – Enables Side by Side output encoding. SDI outputs A and B and the HDMI output will provide identical side by side output signals.
- Top / Bottom – Enables Top and Bottom output encoding. SDI outputs A and B and the HDMI output will provide identical Top/Bottom output signals.
- Line by Line – Enables Line by Line output encoding. SDI outputs A and B and the HDMI output will provide identical line by line output signals.



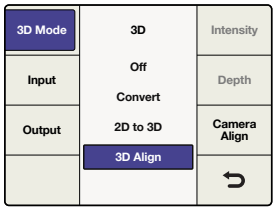
2D to 3D mode must be active to adjust Intensity and Depth.



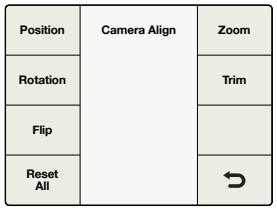
3D Menu>2D to 3D>Intensity



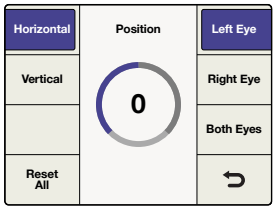
3D Menu>2D to 3D>Depth



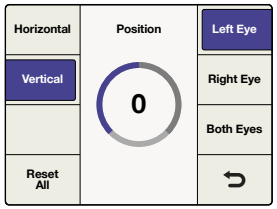
3D Menu>Camera Align



Camera Align Menu



Camera Align >Left Eye Horizontal



Camera Align >Left Eye Vertical

Intensity

The Intensity selection will not be available until 2D to 3D has been selected in the 3D Mode menu. The Intensity setting allows you to control the overall amount of the 3D effect.

- The range of adjustment is -40 (image is in front of the screen) to +40 (image is behind the screen). The default setting is +15. A setting of 0 provides a flat, 2D output image.

Depth

The Depth selection will not be available until 2D to 3D has been selected in the 3D Mode menu.

The Depth setting pushes the overall image deeper. This can add to the 3D effect but in most cases should be left at the default value.

- The range of adjustment is -12 to +12. The default setting is 0.

Camera Align

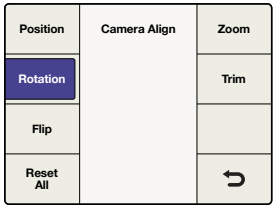
The Camera Align button will be enabled only when you select 3D Align in the 3D Mode menu. The Camera Alignment application performs a variety of processing adjustments to a stereoscopic stream, including image zoom, flip, horizontal & vertical positioning and axial rotation adjustment. Adjustments may be made to the individual eyes or you may link the left and right eye images and simultaneously adjust both eyes of the stereoscopic image by the same amount.

- **Default Settings** – As with other menus in the Teranex Processors, you may push the rotary encoder to return the current parameter to its default setting. Use the "Reset All" menu button to return all controls in the current menu to their default settings.

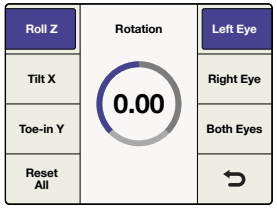
Position Menu

The Position Menu provides for horizontal and vertical position adjustment of each image. You may individually select the left or right eyes, or adjust both eyes simultaneously.

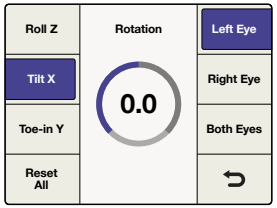
- The range of values shown in the positioning dial will change depending on the output format you have chosen; however, the range will always be -50% to +50% of the picture size, horizontally and vertically. For 1080 outputs, the range of positioning is -959 to +959 pixels horizontally and -539 to +539 lines vertically. For 720 outputs, the range is-639 to +639 pixels and -359 to +359 lines.
  - A positive horizontal value indicates a shift to the right.
  - A negative horizontal value indicates a shift to the left.
  - A positive vertical value indicates a shift upward.
  - A negative vertical value indicates a shift downward.



Camera Align>Rotation



Rotation Menu>Roll Z Axis



Rotation Menu>Tilt X Axis

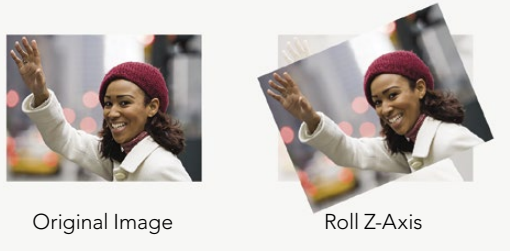
Rotation Menu

The Rotation Menu of the Camera Align application permits axial rotation adjustment of the image along the X, Y, and Z axes, either independently or in any combination of the three dimensions. Axial rotational adjustment can be used to compensate for 3D camera rigs that have mechanical misalignments.

Roll Adjustment - Z-Axis

The Roll Z adjustment provides image rotation on the Z axis.

- The range of adjustment on the Z axis is -8 to +8 degrees, with a granularity of 0.02 degrees. The default setting is 0.


Original Image

Roll Z-Axis

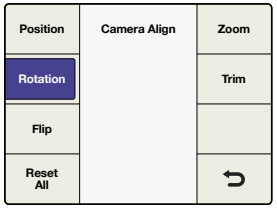
Tilt Adjustment - X Axis

The Tilt X adjustment provides image rotation on the X axis.

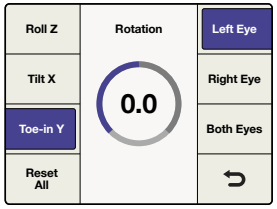
- The range of adjustment on the X axis is -8 to +8 degrees, with a granularity of 0.2 degrees. The default setting is 0.

Original Image

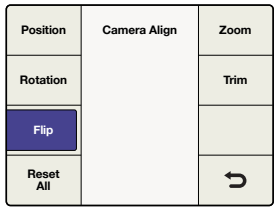
Tilt X-Axis



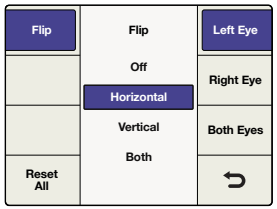
Camera Align>Rotation



Rotation Menu>Toe In Y Axis



Camera Align>Flip

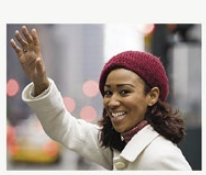


Flip Menu>Left Eye / Horizontal

Toe-In Adjustment - Y Axis

The Toe-in Y adjustment provides image rotation on the Y axis.

- The range of adjustment on the Y axis is -8 to +8 degrees, with a granularity of 0.2 degrees. The default setting is 0.



Original Image

Toe-in Y-Axis

Flip Menu

The Camera Align Flip menu permits you to flip an incoming image horizontally, vertically or in both dimensions simultaneously. This feature may be used to compensate for inverted cameras mounted in 3D camera rigs that use mirrors or prisms.

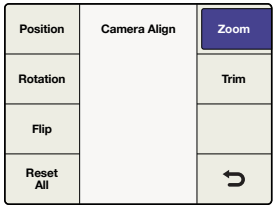
- The Left and Right Eye signals may be flipped independently.
- Selecting the “Both Eyes” button in the Flip menu will simultaneously flip both eyes.
- Pressing **Reset All** will set Flip to **OFF.**

Original Image

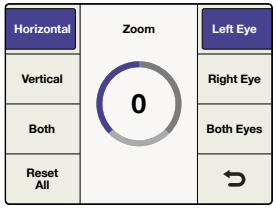
Flipped Horizontally

Flipped Vertically

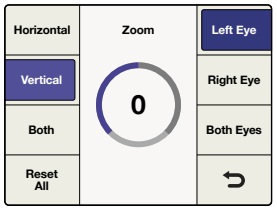
Flipped Both H & V



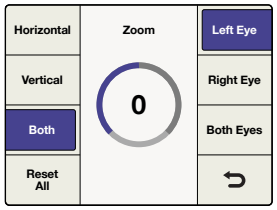
Camera Align Menu>Zoom



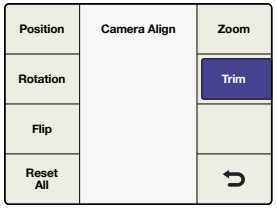
Zoom Menu>Horizontal



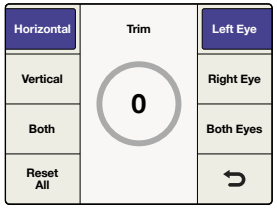
Zoom Menu>Vertical



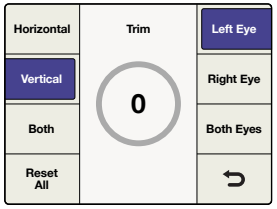
Zoom Menu>Both



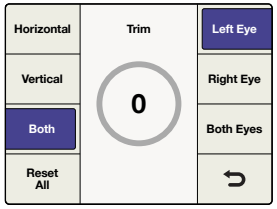
Camera Align Menu>Trim



Trim Menu>Horizontal



Trim Menu>Vertical



Trim Menu>Both

Zoom Menu

The Camera Align Zoom menu permits you to zoom the left and right images in the horizontal and vertical directions independently, or in both directions simultaneously.

- A negative parameter indicates zooming OUT on the image, while a positive parameter indicates zooming IN on the image.
- Pressing "Both" will link the horizontal and vertical zoom parameters, which will maintain the correct aspect ratio while zooming.
- Selecting "Both Eyes" will simultaneously zoom both eyes of the stereoscopic image by the same amount.

Trim Menu

The Camera Align Trim menu permits you to trim the image in the horizontal and vertical directions independently or in both directions simultaneously.

- The range of the trim is dependent on the video format in use.
- In the horizontal direction, the left and right edges will be trimmed simultaneously.
- In the vertical direction, the top and bottom edges will be trimmed simultaneously.
- Pressing "Both" will link the horizontal and vertical trim parameters, which will maintain the correct aspect ratio while trimming.
- Selecting "Both Eyes" will allow you to simultaneously trim both eyes of a stereoscopic image by the same amount.

Connections and Other Important Information for 3D Modes

Let's detail some of the connections and ancillary data handling that will affect your workflows.

Video Connections

Stereoscopic left and right video inputs should be connected to SDI inputs A and B respectively. Similarly, left and right processed outputs will be available at SDI outputs A and B respectively. The HDMI input and output connections support full frame Frame Packed signals.

Video Formats Supported

The 2D to 3D feature supports SD and HD inputs, and converts to an HD output. The 3D Convert and 3D Camera Align features support all 3D-centric video formats that are supported by the Teranex 3D. For 3D Align, both input streams, left and right, must be of the same format and frame rate. The following video format conversions are supported:

- Pass-through, where the output format is the same as the input format.
- 1080i 50/59.94 to 1080p/sf 23.98/24/25/29.97
- 1080p/sf 23.98/24/25/29.97 to 1080i 50/59.94
- 1080i 50/59.94 to 1080i 59.94/50 (Frame Rate Conversion)
- 1080i 50/59.94 to 720p 50/59.94
- 720p 50/59.94 to 1080i 50/59.94
- 720p 50/59.94 to 720p 59.94/50 (Frame Rate Conversion)

Independent Channel Processing

Image alignment for each video channel is possible via the Camera Align application. Proc amp, timecode and noise reduction settings are applied simultaneously to both video streams.

Audio Support

Embedded, AES and Analog audio is supported for "Channel A". When selecting EMBED, the embedded audio on input A will be processed and outputted via output A.

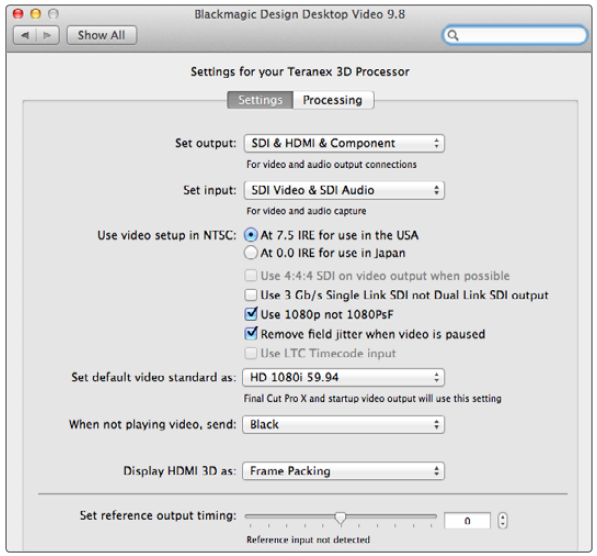
Ancillary Data Support

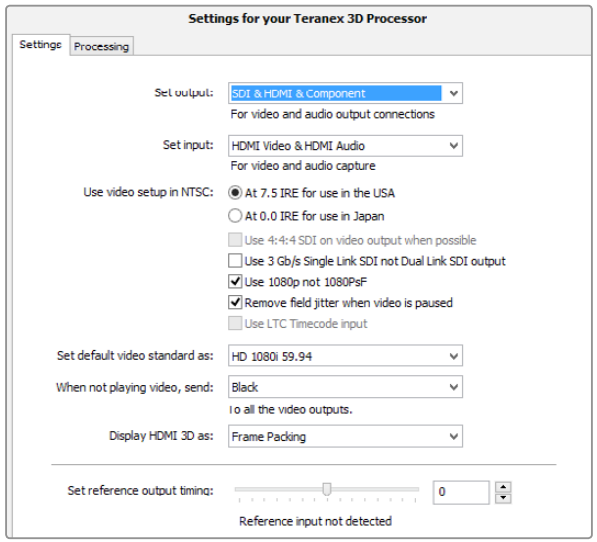
Ancillary data such as timecode and AFD is supported on input A and output A only.

External Reference

The output streams may be synchronized to either Input A or to an external reference of Blackburst or Tri-level sync supplied to the REF connector. Select the type of reference, Internal or External, using Home>Reference>Type.

When using an external reference, the user interface controls both channel A and B, enabling both output streams to remain pixel locked, even when adjusted relative to the selected reference source.


Blackmagic Design Desktop Video 9.8
Show All
Settings for your Teranex 3D Processor
Settings
Processing
Set output:
SDI & HDMI & Component
For video and audio output connections
Set input:
SDI Video & SDI Audio
For video and audio capture
Use video setup in NTSC:
At 7.5 IRE for use in the USA
At 0.0 IRE for use in Japan
Use 4:4:4 SDI on video output when possible
Use 3 Gb/s Single Link SDI not Dual Link SDI output
Use 1080p not 1080PsF
Remove field jitter when video is paused
Use LTC Timecode input
Set default video standard as:
HD 1080i 59.94
Final Cut Pro X and startup video output will use this setting
When not playing video, send:
Black
Display HDMI 3D as:
Frame Packing
Set reference output timing:
0
Reference input not detected


Settings for your Teranex 3D Processor
Settings
Processing
Set output:
SDI & HDMI & Component
For video and audio output connections
Set input:
HDMI Video & HDMI Audio
For video and audio capture
Use video setup in NTSC:
At 7.5 IRE for use in the USA
At 0.0 IRE for use in Japan
Use 4:4:4 SDI on video output when possible
Use 3 Gb/s Single Link SDI not Dual Link SDI output
Use 1080p not 1080PsF
Remove field jitter when video is paused
Use LTC Timecode input
Set default video standard as:
HD 1080i 59.94
When not playing video, send:
Black
to all the video outputs.
Display HDMI 3D as:
Frame Packing
Set reference output timing:
0
Reference input not detected

The Teranex Installer software installs the Blackmagic Design Desktop Video Control Panel in Mac OS X and Windows.

Using your Favorite Editing Software

When your Teranex 2D or 3D Processor is connected to a computer with Thunderbolt technology it can be used as a powerful editing solution for video capture, conversion and playback. The Teranex software installs Blackmagic system preferences for your favorite video editing software on Mac OS X and Windows computers.

Video Capture

When an application is capturing video, the Teranex LCD will show the word "Capture" followed by the video format of the input signal. For example, "Capture: 1080p24". Applications including DaVinci Resolve, Avid Media Composer, Apple Final Cut Pro 7, Adobe Premiere Pro CC and Adobe Photoshop CC can all capture video from your Teranex Processor.

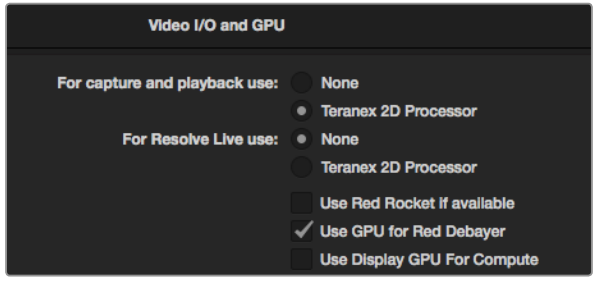
Teranex captures the converted video output. Press the OUT button on your Teranex and check your project or capture preferences match the video format, frame type and frame rate shown by the illuminated buttons.

Batch captures with RS-422 deck control may not be exactly frame accurate because of the conversion processing delay. Accordingly, it is a good idea to use an offset or add handles to your captures. Of course you can also capture without deck control.

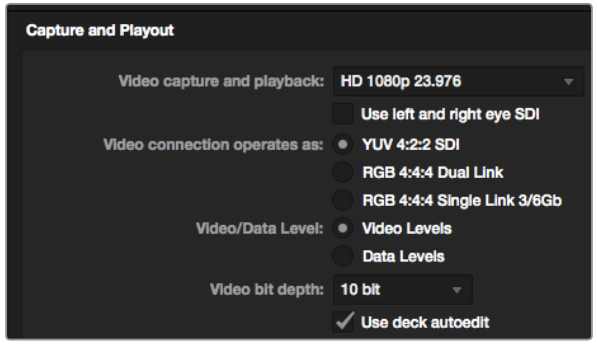
Video Playback

When any video application is in playing back a clip, the Teranex Processor LCD will show the word "Playback" followed by the video format. For example, "Playback: 1080p24". The only illuminated buttons will be those that match the video format being played. All other buttons will be unlit and unavailable as the playback format is set by the clip and so no conversions are allowed. Some applications including Adobe After Effects and Apple Final Cut Pro X are always in playback mode.

DaVinci Resolve



From Preferences select the "Video I/O and GPU" tab and select your Teranex from the “For capture and playback use” option.



Select your desired format from the "Video capture and playback" menu.

DaVinci Resolve

You can use DaVinci Resolve to capture both video and audio from your Teranex processor. For example, you could use Teranex to upconvert an old analog videotape and simultaneously capture the HD output with Resolve. Once the clips are captured into Resolve's Media Pool, it's easy to use the powerful editing and color grading tools to further enhance your material.

Setting Up

Step 1. Launch Resolve and from the Preferences menu, select the "Video I/O and GPU" tab and select your Teranex from the “For capture and playback use” option. Save your preferences and restart Resolve to apply your changes.

Step 2. Start a project and from within the Project Settings window, set the resolution and frame rate to match the output format of your Teranex.

Step 3. In the Project Settings window, go to the "Deck Capture and Playback" tab and select your desired format from the "Video capture and playback" menu.

Step 4. If you are capturing audio, be sure to tick the "Enable audio input" box.

Step 5. Use the "Save clips to" option and Browse to a location to save your captured media.

Capture

Step 1. From within the Media page, click on the capture icon which is located to the left of the transport controls underneath the Viewer.

Step 2. Within the Metadata Editor window, enter a name for your clip in the "File Name Prefix" section. If necessary you can also enter additional information such as Roll/Card, Reel Number, Clip Number, Program Name or Good Take.

Step 3. To begin capturing click the "Capture Now" button which is located at the bottom of the Metadata Editor window. Click the button again to stop the capture.

Playback

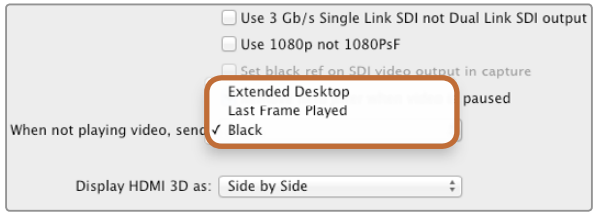
To playback your clips from the Media page, click the playback icon which is located immediately to the left of the capture icon. Click on a clip that you have captured to display it in the Viewer.

Editing and Color Grading

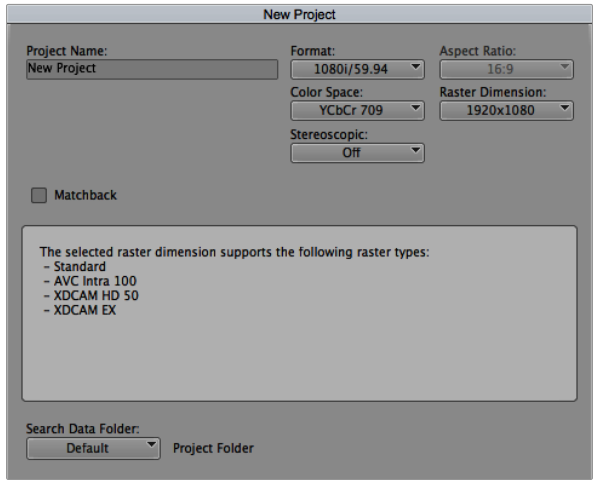
Once you've captured your clips, simply click the Edit page to begin using Resolve's extensive editing features. Then jump to the Color page to apply that "killer" grade. You can refer to the DaVinci Resolve manual for detailed information on these features.

Media Composer® | Software
Activated:
- No Options
Media Composer 8.0.0
(C)2014 Avid Technology, Inc. All rights reserved.
Use of this software is subject to a related license agreement.
Computer Name: blackmagic's imac

Avid Media Composer



If using a single computer monitor with Media Composer, open the Blackmagic Design system preferences and choose to send Black when not playing video.



Type a project name and set the project options.

Avid Media Composer

Avid Media Composer captures and plays back standard definition and high definition video and audio with Teranex Processor hardware and also supports RS-422 deck control. Blackmagic plug-ins for Media Composer are automatically installed if Media Composer is installed before the Desktop Video software.

For this example, the converted output from Teranex will be 1080i59.94 and we will be capturing from a non-controllable device.

Setting Up

Step 1. Launch Media Composer and the Select Project window will appear. Click the New Project button.

Step 2. In the New Project window, name your project.

Step 3. Go to the Format dropdown menu and select 1080i/59.94.

Step 4. Go to the Color Space dropdown menu and select YCbCr 709.

Step 5. Go to the Raster Dimension dropdown menu and select 1920x1080. Click OK.

Capture

Step 1. Choose Tools > Capture to open the Capture Tool.

Step 2. Click the Toggle Source button so that the button's icon of a deck shows a red circle-slash symbol.

Step 3. Set the Video and Audio input menus to "Blackmagic".

Step 4. Select your video and the audio source tracks.

Step 5. Use the Bin menu to select a Target Bin.

Step 6. From the Res dropdown menu, choose your codec.

Step 7. Select the disk storage for your captured video and audio.

Step 8. Click the "Tape Name?" button and select the desired tape and click OK.

Step 9. Ensure your video and audio source is ready or playing and then click the Capture button.

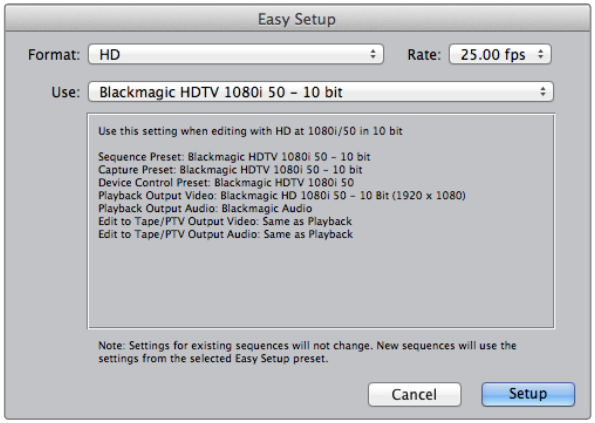
Step 10. Click the Capture button again to stop capturing and close the Capture Tool.

Playback

You can use the Avid Media Composer timeline to display video on a monitor or TV connected to the output of your Teranex Processor. Output Video can be toggled on and off by using the "Toggle Client Monitor" button which is located at the bottom of the timeline window.

Final Cut Pro
Licensed To:
Blackmagic Design
Version:
Final Cut Pro 7.0.3
Loading FCP External Plugins...
© 2001–2010 Apple Inc. All rights reserved. Apple, the Apple logo, and Final Cut Pro are trademarks of Apple Inc., registered in the U.S. and elsewhere. See www.apple.com/legal/trademark for more information.
DATE
CAMERA
SCENE
TAKE
ROLL

Apple Final Cut Pro 7


Easy Setup
Format: HD
Rate: 25.00 fps
Use: Blackmagic HDTV 1080i 50 – 10 bit
Use this setting when editing with HD at 1080i/50 in 10 bit
Sequence Preset: Blackmagic HDTV 1080i 50 – 10 bit
Capture Preset: Blackmagic HDTV 1080i 50 – 10 bit
Device Control Preset: Blackmagic HDTV 1080i 50
Playback Output Video: Blackmagic HD 1080i 50 – 10 Bit (1920 x 1080)
Playback Output Audio: Blackmagic Audio
Edit to Tape/PTV Output Video: Same as Playback
Edit to Tape/PTV Output Audio: Same as Playback
Note: Settings for existing sequences will not change. New sequences will use the settings from the selected Easy Setup preset.
Cancel
Setup

Select a Blackmagic Easy Setup

Apple Final Cut Pro 7

"Easy Setups" for Final Cut Pro 7 are automatically installed if Final Cut Pro is installed before the Desktop Video software. Blackmagic video hardware is fully compatible with Apple's RT Extreme™ real time effects.

For this example, the converted output from the Teranex will be 1080i50 and we will be capturing from a non-controllable device.

Setting Up

Step 1. Launch Final Cut Pro 7 and select File>New Project.

Step 2. Select File>Save Project As... and name your project.

Step 3. From the Final Cut Pro menu, select Easy Setup...to open the Easy Setup window.

Step 4. Choose "HD" for the Format and '25.00 fps" for the Rate. Select "Blackmagic HDTV 1080i 50 - 10 bit" from the Use menu. Click Setup to close the window.

Step 5. From the Final Cut Pro menu, select System Settings and with the Scratch Disks tab highlighted, select Set and choose the drive or drives for your scratch disks. Click OK.

Capture

Step 1. Choose File > Log and Capture to open the Log and Capture window.

Step 2. Press play on your video source and then press the "Now" button which is under the Capture heading to begin the capturing.

Step 3. Press the 'esc' key at the top left of your keyboard to stop capturing.

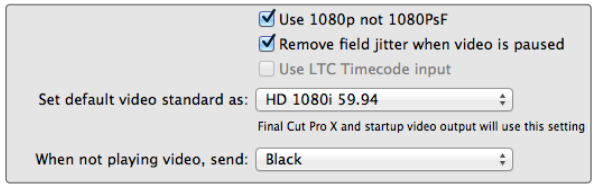
Step 4. Choose File > Log and Capture to close the window.

Playback

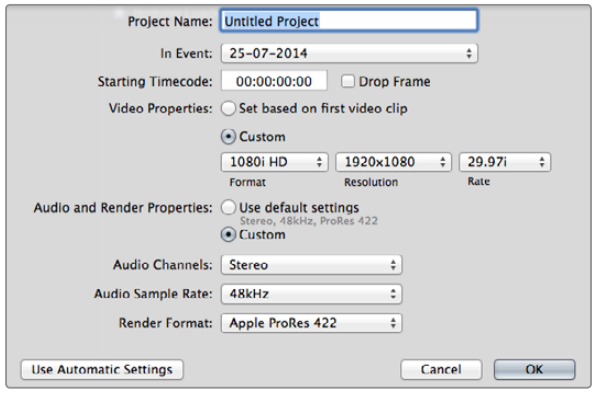
You can use the Final Cut Pro timeline to display video on a monitor or TV connected to the output of your Teranex Processor. If you can't see any video on your Blackmagic output, check the connections again and ensure you have the correct output settings configured within Final Cut Pro by going to the View > External Video and ensuring "All Frames" is selected.

Final Cut Pro X
Version 10.1.2
© 2001–2014 Apple Inc. All rights reserved. Apple, the Apple logo, and Final Cut Pro Trial are trademarks of Apple Inc., registered in the U.S. and other countries.

Final Cut Pro X


Use 1080p not 1080PsF
Remove field jitter when video is paused
Use LTC Timecode input
Set default video standard as: HD 1080i 59.94
Final Cut Pro X and startup video output will use this setting
When not playing video, send: Black

Set the default video standard in the System Preferences to match your Final Cut Pro X project.



Set the Audio and Render Properties to Custom.

Apple Final Cut Pro X

If you want to use Final Cut Pro X to play back video on an external video monitor or TV, you can use the broadcast monitoring feature of Final Cut Pro X 10.0.4 and newer to output your video through Teranex Processor hardware.

For this example, clips are Uncompressed 10 bit 4:2:2 1080i59.94 with 2 channels of audio.

Setting Up

Step 1. Open the System Preferences and click on Blackmagic Design. Go to the setting, "Set default video standard as" and then select HD 1080i59.94.

Step 2. Launch Final Cut Pro X and go to the Menu bar and select File/New Project. A window will open containing project settings.

Step 3. Name your project and click the "Use Custom Settings" tab.

Step 4. Under Video Properties, click the Custom button and set the following: Format to HD 1080i, Resolution to 1920x1080 and Rate to 29.97.

Step 5. Under Audio and Render Properties, click the Custom button

Step 6. Set the Audio and Render Properties, click the Custom button and set the following: Audio Channels to Stereo, Audio Sample Rate to 48kHz and Render Format to Uncompressed 10 bit 4:2:2. Click OK.

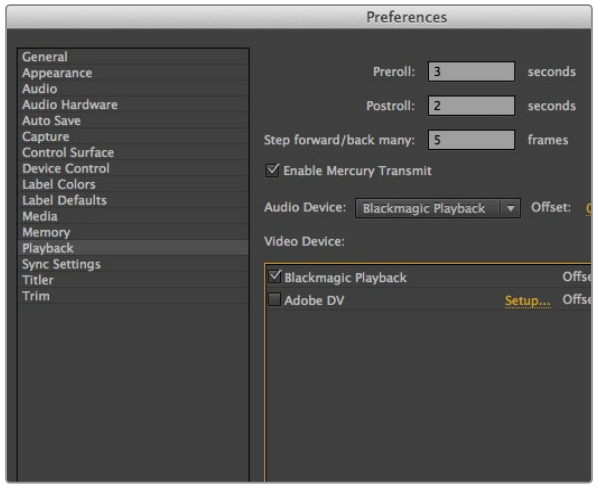
Step 7. Go to the Final Cut Pro menu, choose Preferences and then click the Playback tab. Ensure the A/V Output menu has selected "Blackmagic" and the same video standard as your project. Close the Preferences.

Step 8. Go to the Window menu and select A/V Output to enable video output via your Teranex Processor.

Playback

After importing your clips you can use the Final Cut Pro X timeline to display video on a monitor or TV connected to the output of your Teranex Processor. If you can't see any video on your Blackmagic output, check the connections again and ensure you have the correct output settings configured within Final Cut Pro by going to the View > External Video and ensuring "All Frames" is selected.

Premiere Pro CC (2014)



Set preferences for Playback.

Adobe Premiere Pro CC

For this example, the converted output from the Teranex will be 1080i50 and we will be capturing from a non-controllable device.

Setting Up

Step 1. Launch Premiere Pro CC. In the Welcome window select Create New/New Project. A window will open containing project settings.

Step 2. Name your project. Choose the location for your project by clicking Browse and selecting your desired folder.

Step 3. If your graphics card is supported by Premiere Pro CC's Mercury Playback Engine, the Renderer option will be available and you should switch it to Mercury Playback Engine GPU Acceleration.

Step 4. Set the "Capture Format" to "Blackmagic Capture" and click on the Settings button. Set "Video Standard" to 1080i50 and select a "Video Format" according to your requirements. Click OK.

Capture

Step 1. Select File > Capture [F5]

Step 2. Click the red record button [G] to begin capture.

Step 3. Click the stop button [S] to stop capture.

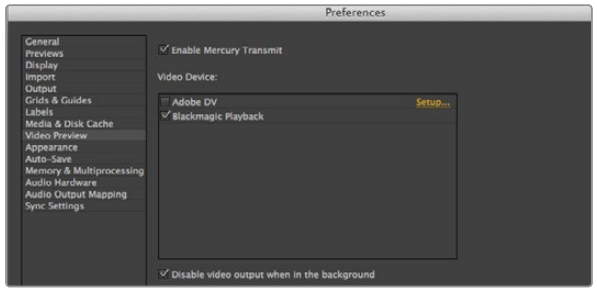
Playback

Step 1. Playback settings need to be selected each time a new project is created. Go to Preferences > Playback and under "Video Device," enable the checkbox for "Blackmagic Playback" and ensure the other checkboxes are empty.

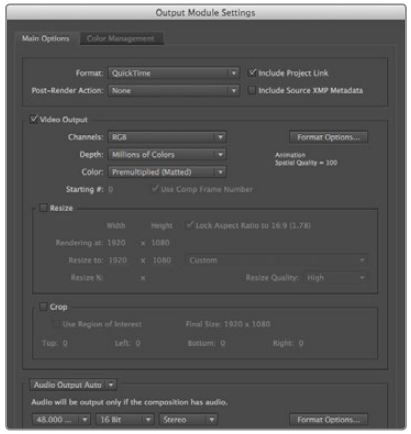
Step 2. For audio playback, select "Blackmagic Playback" from the "Audio Device" dropdown menu.

Step 3. Click on a clip and you should now see the image on your Teranex Processor.

After Effects CC (2014)



"Video Preview" preferences



"Output Module Settings" rendering options

Adobe After Effects CC

How to use Blackmagic as a preview output frame buffer

To display your composition in real-time through your Blackmagic hardware, go to Preferences > Video Preview. Mercury Transmit must be enabled in order to use your Blackmagic hardware with After Effects CC. Under Video Devices, select Blackmagic Playback. You can now use a broadcast monitor to view your After Effects compositions in the correct video colorspace. You will always see the correct color and interlace when working, and you don't have to wait until your composition is rendered to see what it looks like when output as video.

If you also want to listen to audio through your Teranex Processor, set the "Default Device" to "Blackmagic Audio" in Preferences > Audio Hardware and Preferences > Audio Output Mapping.

Rendering

When you have completed your composition, you will need to render to a pixel format supported by your Teranex Processor hardware. You can render to a DPX image sequence or any of the following supported codecs:

QuickTime codecs on Mac OS X

- Blackmagic RGB 10 bit (uncompressed)
- Apple Uncompressed YUV 10 bit 4:2:2
- Apple Uncompressed YUV 8 bit 4:2:2
- Apple Photo - JPEG (compressed)
- Apple DV - NTSC (compressed)
- Apple DV - PAL (compressed)

Other codecs including ProRes and DVCPRO HD will be available if you have Final Cut Pro installed.

AVI codecs on Windows

- Blackmagic 10 bit 4:4:4 (uncompressed)
- Blackmagic 10 bit 4:2:2 (uncompressed)
- Blackmagic HD 8 bit 4:2:2 (uncompressed)
- Blackmagic SD 8 bit 4:2:2 (uncompressed)
- Blackmagic 8 bit MJPEG (compressed)

Other codecs including DVCPRO HD and DVCPRO50 will be available if you have Premiere Pro CC installed.

QuickTime codecs on Windows

- Blackmagic RGB 10 bit (uncompressed)
- Blackmagic 10 bit (uncompressed)
- Blackmagic 8 bit (uncompressed)
- Apple Photo-JPEG (compressed)
- Apple DV - NTSC (compressed)
- Apple DV - PAL (compressed)

Photoshop CC (2014)

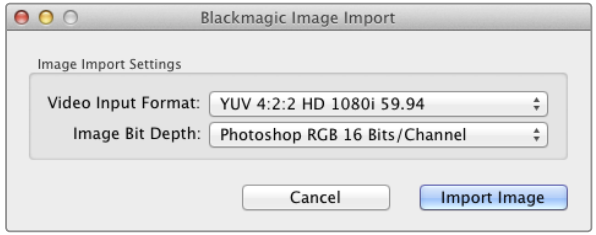


Image Capture

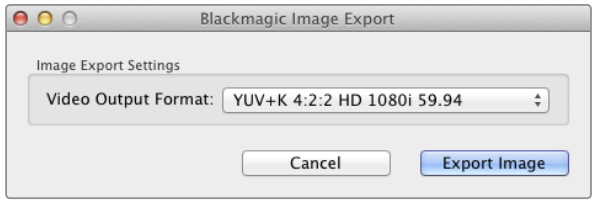


Image Export

Adobe Photoshop CC

How to grab and output video frames

Import an image into Photoshop

Step 1. From Photoshop select File > Import > Blackmagic Image Capture.

Step 2. Select the "Video Input Format" and the "Image Bit Depth" and then click Capture Image.

Export an image from Photoshop

Step 1. Select File > Export > Blackmagic Image Export.

Step 2. Select Video Output Format and then click Output Image.

Once you have set the options in the "Import" or "Export" windows, each subsequent Import and Export will not display the window, so you can grab and output frames much faster. However if you would like to change your import or export formats, hold the Option [Mac] or Ctrl [Win] key, when selecting import or export.

Blackmagic UltraScope - Full Screen View

2-Up view

Using Blackmagic UltraScope for Waveform Monitoring

With the Teranex 2D and 3D Processors, you get the incredible features of Blackmagic UltraScope which you can even use with compatible Mac OS X and Windows notebook computers using Thunderbolt technology! Blackmagic UltraScope software is installed by the Teranex Processor Installer.

Blackmagic UltraScope is perfect for quality control checks of your converted output no matter which SDI, HDMI, component analog or composite analog video input you use. Simply connect a Thunderbolt cable between your Teranex Processor and your computer and launch Blackmagic UltraScope!

Installation Requirements

The Blackmagic UltraScope software interface requires a computer display with a minimum resolution of 1280 x 800 pixels to view two scopes simultaneously. Blackmagic Design recommends viewing all 6 scopes simultaneously by using a computer display resolution of 1920 x 1200 or 1920 x 1080 pixels.

Please see the support pages at www.blackmagicdesign.com for a comprehensive list of the latest minimum system requirements for Blackmagic UltraScope.

Understanding Blackmagic UltraScope Views

Blackmagic UltraScope has two different views available depending on your workflow needs and screen resolution. You have the choice of viewing six displays in “Full Screen” view, or for more compact viewing, choose any 2 displays in “2-up” view.

The display view can be selected from the View menu.

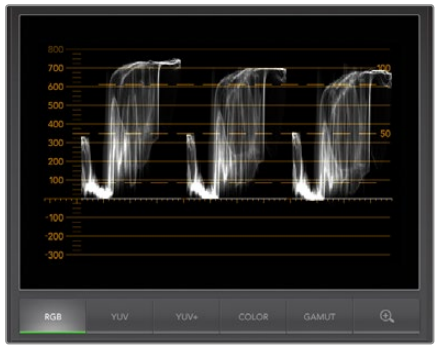
Choose Full Screen to enter Full Screen view. If this option is unchecked, 2-up view will be displayed. You can quickly switch between Full Screen view and 2-up view by using the hot key CMD-F on Mac OS X.

In 2-up view, select the desired left and right scopes by opening the View menu or by right-clicking anywhere in the UltraScope window. Make your selections from the Left View and Right View menu options.

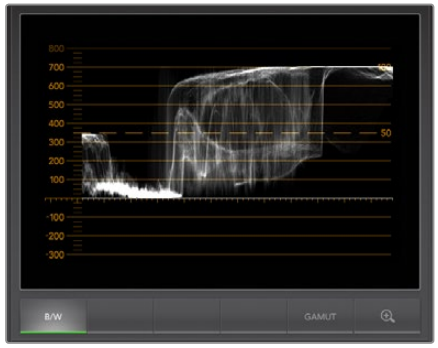
If you want the scopes to swap sides, select the left or right view and set it to be the same as the other view. The scopes will swap sides because the 2-up view never displays the same scope in both the left and right views.

Screen Resolution Requirements for Display Views

- Full Screen view: 1920 x 1200 pixels or 1920 x 1080 pixels. If your monitor doesn’t support these resolutions, then Full Screen view will not be available.
- 2-up view: minimum resolution of 1280 x 800 pixels.



RGB Parade Display



Waveform Display

Blackmagic UltraScope Displays

Blackmagic UltraScope software is a great tool for maintaining accurate broadcast legal video and audio levels from your Teranex's converted output. Scopes used to monitor your levels include RGB Parade, Waveform, Vectorscope, Histogram and Audio Metering Display.

RGB Parade Display

RGB parade displays the red, green and blue channels of your converted output. If one of the color channels appears taller, it usually indicates the presence of a color cast. This may not be desirable and you may want to try minimizing the color cast during post production using color correction software, such as Blackmagic DaVinci Resolve.

Waveform Display

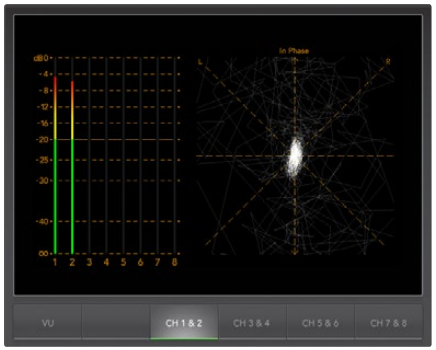
The waveform is great for seeing your black and white levels and overall image contrast. An image with good contrast will display information from 0 IRE to 100 IRE. An image with poor contrast will have the majority of information centered in the display, with little information in the top or bottom areas.

If you are seeing "milky" or gray blacks on your video display, then they will appear elevated above the 0 IRE line. To adjust the black level, press the BLK button on the front of the Teranex and use the rotary knob to lower the black level. If you lower the black level below 0 IRE you will "crush" the image and you risk eliminating shadow detail. Adjust the black level and observe the change on both the monitor and the waveform.

Likewise, if your highlights appear muted or dull, they will appear below the 100 IRE line. To adjust the white level, press the GAIN button on the front of the Teranex and use the rotary knob to increase the white level. If you raise the level above 100 IRE you will "clip" the image and you risk eliminating highlight detail. Adjust the white level and observe the change on both the monitor and the waveform.

Vectorscope Display

Histogram Display



Audio Metering Display

Vectorscope Display

The Vectorscope is useful for monitoring the color balance and saturation of your Teranex's converted video output. For instance, if your signal has a dominant green color cast then the majority of image information will be located towards the green area of the vectorscope. In comparison, an image with a neutral color balance will have information evenly distributed around the center.

The center of the vectorscope represents zero saturation. The further an object is from the center, the more saturated it appears. If your material appears under or over saturated, press the SAT button on your Teranex Processor and use the rotary knob to either increase or decrease saturation.

Teranex's HUE button can be used if the overall image color appears skewed. As you turn the rotary knob you will see the color information rotate around the vectorscope's center point. Unless the original image has a dramatic color skew, small adjustments will usually be better.

Histogram Display

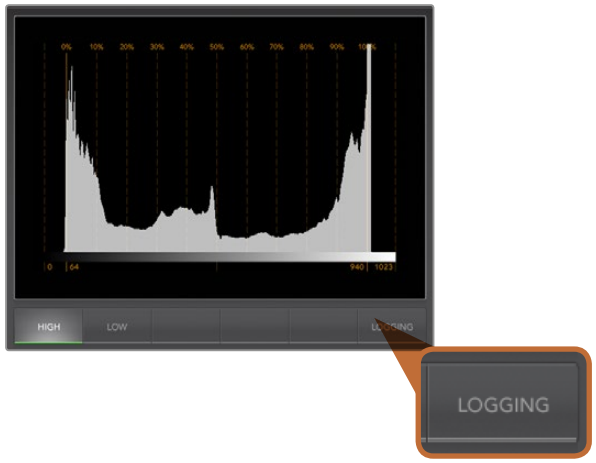
Using the Histogram is another way to check image contrast. The horizontal axis represents the luminance range with black on the left (0 in a 10 bit image) and white on the right (1023 in a 10 bit image). An image with good contrast will display information covering the entire horizontal axis, whereas a low contrast image will display information predominantly in the middle. Use your Teranex Processor's BLK and GAIN button settings to make the necessary adjustments.

Audio Metering Display

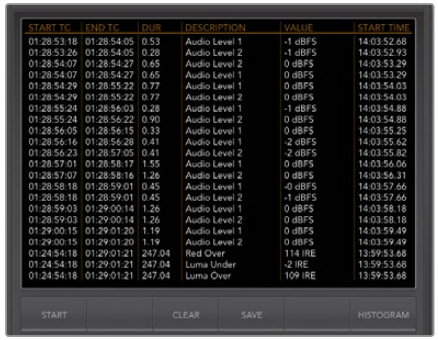
Audio metering display shows you the audio levels from your Teranex Processor. The audio is displayed in either dBFS or VU format. dBFS is essentially a meter of the overall digital audio signal and is common on modern digital equipment. The VU meter shows average signal levels, is easy to use and very common on older equipment.

To monitor your audio levels, watch the VU meter and ensure the levels never peak above 0dB. Peaking above 0dB means your audio is clipping.

You can also monitor audio phase and balance using the audio metering display.



From the Histogram Display, select the Logging button to switch to the Error Logging Display.



Error Logging Display

Error Logging records errors in video and audio and is indispensable for unattended operation, such as during long conversions. Errors may be logged for color, brightness or audio threshold levels as well as loss of video signal, change of video format or audio silence. After setting the parameters which define when an error should be logged, you can choose to start or stop error logging, save the log to a file, or clear the log. These functions can be selected from the buttons in the Error Logging Display or from the Error Logging pulldown menu.

Errors are recorded against timecode and time of day to make them easy to find. If the timecode is not present, errors can be found by reviewing the time of day at which they were recorded.

In the Full Screen view, Histogram and Error Logging Displays share the same area of the UltraScope interface. Select the LOGGING button, below the Histogram Display, to switch to Error Logging Display. Select the HISTOGRAM button to switch back to the Histogram Display.

In 2-up view, Histogram and Error Logging Displays can be viewed on two panels simultaneously.

Select the START button to commence logging. In Full Screen view, you can switch back to the Histogram Display and UltraScope will continue to perform error logging until you choose to stop it.

When error logging is being performed, the STOP button replaces the START button. When the STOP button has been selected, you can choose to START again and any new errors will be appended to the existing log. When error logging stops, you can choose to SAVE the log to a CSV file or alternatively CLEAR the log. If no errors have been recorded, the SAVE and CLEAR buttons will not appear. The CSV file can be analyzed in many applications including spreadsheet and database software.

By default, error logging is performed using the EBU-R103 standard set by the European Broadcasting Union. This standard is popular worldwide and is commonly used as a template for making new error logging profiles.

Format Conversion Table - Teranex 2D and 3D

Output	Input
486i59.94	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
576i50	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
720p50	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
720p59.94	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Format Conversion Table - Teranex 2D and 3D

Output	Input
1080p23.98	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080PsF23.98	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080p24	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080PsF24	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Format Conversion Table - Teranex 2D and 3D

Output	Input
1080p25	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080PsF25	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080p29.97	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080PsF29.97	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Format Conversion Table - Teranex 2D and 3D

Output	Input
1080i50	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080p50	480i59.94*
	576i50
	720p50
	720p59.94*
	1080p23.98*
	1080PsF23.98*
	1080p24*
	1080PsF24*
	1080p25
	1080PsF25
	1080p29.97*
	1080PsF29.97*
	1080i50
	1080p50
	1080i59.94*
	1080p59.94*

Output	Input
1080i59.94	480i59.94
	576i50*
	720p50*
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080p50
	1080i59.94
	1080p59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
1080p59.94	480i59.94
	576i50*
	720p50*
	720p59.94
	1080p23.98*
	1080PsF23.98*
	1080p24*
	1080PsF24*
	1080p25*
	1080PsF25*
	1080p29.97
	1080PsF29.97
	1080i50*
	1080p50*
	1080i59.94
	1080p59.94

*These conversions are available in the Teranex 3D Processor only.

Format Conversion Table - Teranex 2D and 3D

Output	Input
2k1080p23.98	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080i59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
2k1080PsF23.98	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080i59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
2k1080p24	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080i59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Output	Input
2k1080PsF24	480i59.94
	576i50
	720p50
	720p59.94
	1080p23.98
	1080PsF23.98
	1080p24
	1080PsF24
	1080p25
	1080PsF25
	1080p29.97
	1080PsF29.97
	1080i50
	1080i59.94
	2k1080p23.98
	2k1080PsF23.98
	2k1080p24
	2k1080PsF24

Format Conversion Table - Teranex Express

Output	Input
480i59.94	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Output	Input
576i50	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
720p50	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
720p59.94	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Output	Input
720p60	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

Output	Input
1080p23.98	1080p23.98
	1080PsF23.98
	2K1080p23.98
	2K1080PsF23.98
	UHD 2160p23.98

Output	Input
1080PsF23.98	1080p23.98
	1080PsF23.98
	2K1080p23.98
	2K1080PsF23.98
	UHD 2160p23.98

Output	Input
1080p24	1080p24
	1080PsF24
	2K1080p24
	2K1080PsF24
	UHD 2160p24

Output	Input
1080PsF24	1080p24
	1080PsF24
	2K1080p24
	2K1080PsF24
	UHD 2160p24

Output	Input
1080p25	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
1080PsF25	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
1080p29.97	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Format Conversion Table - Teranex Express

Output	Input
1080PsF29.97	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Output	Input
1080p30	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

Output	Input
1080PsF30	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

Output	Input
1080i50	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
1080p50	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
1080i59.94	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Output	Input
1080p59.94	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Output	Input
1080i60	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

Output	Input
1080p60	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

Output	Input
2K1080p23.98	1080p23.98
	1080PsF23.98
	2K1080p23.98
	2K1080PsF23.98
	UHD 2160p23.98

Output	Input
2K1080PsF23.98	1080p23.98
	1080PsF23.98
	2K1080p23.98
	2K1080PsF23.98
	UHD 2160p23.98

Output	Input
2K1080p24	1080p24
	1080PsF24
	2K1080p24
	2K1080PsF24
	UHD 2160p24

Format Conversion Table - Teranex Express

Output	Input
2K1080PsF24	1080p24
	1080PsF24
	2K1080p24
	2K1080PsF24
	UHD 2160p24

Output	Input
UHD 2160p23.98	1080p23.98
	1080PsF23.98
	2K1080p23.98
	2K1080PsF23.98
	UHD 2160p23.98

Output	Input
UHD 2160p24	1080p24
	1080PsF24
	2K1080p24
	2K1080PsF24
	UHD 2160p24

Output	Input
UHD 2160p25	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
UHD 2160p29.97	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

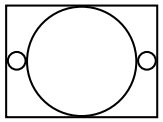
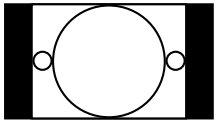
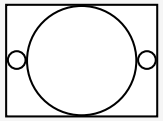
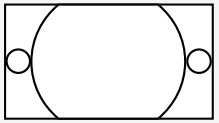
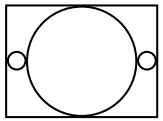
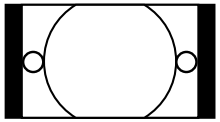
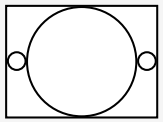
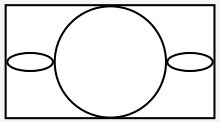
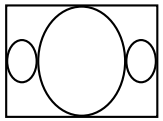
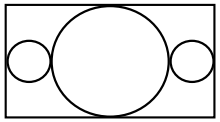
Output	Input
UHD 2160p30	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

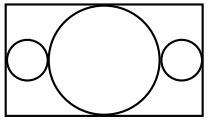
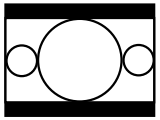
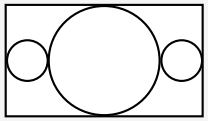
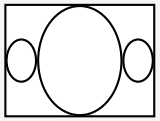
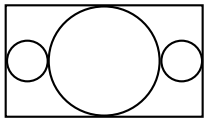
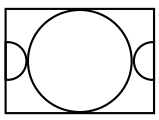
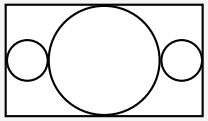
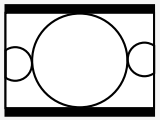
Output	Input
UHD 2160p50	576i50
	720p50
	1080p50
	1080i50
	1080p25
	1080PsF25
	UHD 2160p25
	UHD 2160p50

Output	Input
UHD 2160p59.94	480i59.94
	720p59.94
	1080p59.94
	1080i59.94
	1080p29.97
	1080PsF29.97
	UHD 2160p29.97
	UHD 2160p59.94

Output	Input
UHD 2160p60	720p60
	1080p30
	1080PsF30
	1080i60
	1080p60
	UHD 2160p30
	UHD 2160p60

Aspect Ratio Conversion Table

Up Conversion	Input 4:3	Output 16:9	
PBOX (Pillarbox)			Displays a 4:3 SD image inside an HD 16:9 frame. Black bars feature on the sides.
ZOOM			Zooms into an SD 4:3 image until it completely fills the HD 16:9 frame. A portion of the top and bottom is lost.
14:9			A compromise between Pillarbox and Zoom. Minimal black bars with a slight crop on the top and bottom.
SMART			Incrementally stretches the sides to fit 16:9 without distoring the main action of the 4:3 image.
ANAM (Anamorphic)			Horizontally stretches the 4:3 SD image into a 16:9 HD frame.

Down Conversion	Input 16:9	Output 4:3	
LBOX (Letterbox)			Scales the entire 16:9 HD image into a 4:3 SD frame leaving black bars on the top and bottom.
ANAM (Anamorphic)			Horizontally squeezes the 16:9 HD image into a 4:3 SD frame.
CCUT (Center Cut)			Cuts a 4:3 SD frame from the 16:9 HD image.
14:9			A compromise between Letterbox and Center Cut. Minimal black bars with a slight edge crop.

Aspect Ratio Conversion Table

Widescreen 16:9 SD Conversion to 4:3 SD

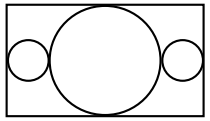
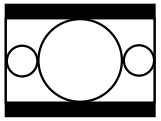
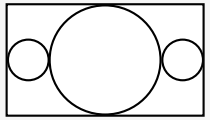
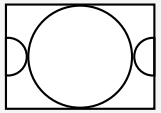
While most standard definition (SD) programming utilizes a 4:3 aspect ratio, some SD sources may have been recorded in widescreen (16:9). To process SD widescreen inputs properly, the Teranex Processor must be configured to recognize the source as a 16:9 signal.

Step 1. Press the IN button on the front panel.

Step 2. In the ASPECT section, press the LBOX button to define your SD input as 16:9 widescreen.

Step 3. Press the OUT button on the front panel.

Step 4. To output a letterbox version of your widescreen SD source, press the LBOX button. To output a center cut from the your widescreen SD source, press the CCUT button.

SD to SD Conversion	Input is Widescreen SD	Output 4:3	
Input LBOX with Output LBOX			Scales the entire 16:9 SD image into a 4:3 frame leaving black bars on the top and bottom.
Input LBOX with Output CCUT			Cuts a 4:3 SD frame from the 16:9 SD image.

4:3 Letterbox SD Conversion to 16:9 SD or HD

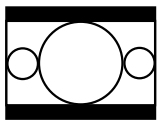
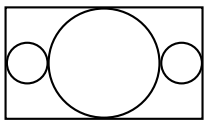
A 4:3 standard definition (SD) source with an letterboxed 16:9 image can be converted to a full 16:9 output aspect ratio by extracting the 16:9 letterbox and expanding it to a full 16:9 image. The output format can be SD or HD in the Teranex 2D or 3D, as well as UHD in the Teranex Express.

Step 1. Press the IN button on the front panel.

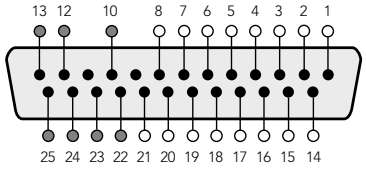
Step 2. In the ASPECT section, press CCUT.

Step 3. Press the OUT button on the front panel and select the desired output video format.

Step 4. In the ASPECT section, press CCUT to output a full 16:9 image. For an SD output, the front panel LCD will display an anamorphic 4:3 image. For HD formats, the image will be 16:9.

4:3 LBOX to 16:9 Conversion	Input is Letterbox SD	Output 16:9	
Input CCUT with Output CCUT			Expands the 16:9 letterbox to a full 16:9 aspect ratio

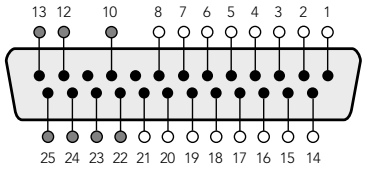
DB25 Connector Pin-outs for the Teranex 2D



DB-25 pin outs also compatible with Yamaha™, Mackie™, Sony™ and Apogee™ connectors.

Analog Audio Ch.	Hot Pins (+)	Cold Pins (–)	Ground Pins
1 IN	1	14	10
2 IN	2	15	12
3 IN	3	16	13
4 IN	4	17	22
1 OUT	5	18	23
2 OUT	6	19	24
3 OUT	7	20	25
4 OUT	8	21	25

Teranex 2D Processor analog audio pin connections.



DB-25 pin outs also compatible with Yamaha™, Mackie™, Sony™ and Apogee™ connectors.

AES/EBU Audio Ch.	Hot Pins (+)	Cold Pins (–)	Ground Pins
1&2 IN	1	14	10
3&4 IN	2	15	12
5&6 IN	3	16	13
7&8 IN	4	17	22
1&2 OUT	5	18	23
3&4 OUT	6	19	24
5&6 OUT	7	20	25
7&8 OUT	8	21	25

Teranex 2D Processor AES/EBU audio pin connections.

Analog Audio Inputs/Outputs

Two methods of connecting analog audio are available in the Teranex 2D:

- a DB-25 multi-pin connector for connecting 4 channels of balanced analog audio In and Out
- a pair of RCA phono connectors for stereo left and right input.

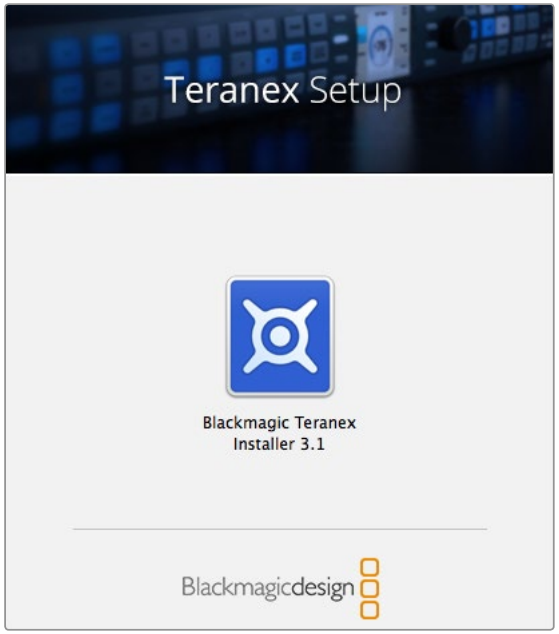
When you select the ANLG button on the front panel as the audio input type, a menu page will appear on the front panel LCD allowing you to choose which of the two analog audio sources you want to use.

A DB-25 connector is used for connection of 4 input channels and 4 output channels of balanced analog audio to the Teranex 2D Processor. An optional breakout cable is required, which is a standard Yamaha format cable for balanced XLR connections. This inexpensive breakout cable may be purchased through many vendors, or may be fabricated using off the shelf connectors and cable.

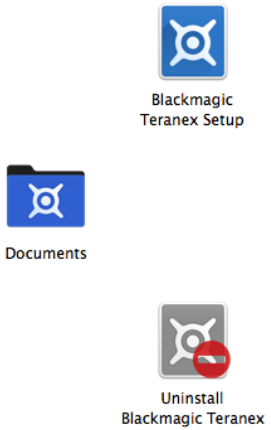
AES/EBU Audio Inputs/Outputs

Press the AES button on the Teranex 2D front panel to select the AES/EBU digital audio input. The AES/EBU output is always active.

A DB-25 connector is used for connecting up to 8 input channels (4 pairs) and 8 output channels (4 pairs) of balanced, AES/EBU digital audio to the Teranex 2D Processor. An optional breakout cable is required, which is a standard Yamaha format cable for balanced XLR connections. This inexpensive breakout cable may be purchased through many vendors, or may be fabricated using off the shelf connectors and cable.



Launch the Blackmagic Teranex Installer and follow the install prompts.



The Blackmagic Teranex folder includes the Blackmagic Teranex Setup utility, an uninstaller for when updating previous Teranex software to a newer version, plus a Documents folder containing the user manual and other Teranex information.

Installing Blackmagic Teranex Software on Mac OS X

The Blackmagic Teranex installer ensures your computer has all the drivers and software needed to get the most out of your Teranex Processor. It's a good practice to regularly check the Blackmagic website for any updates to the Teranex installer, or for any new internal software using the Teranex Setup utility via USB.

To install your Teranex software for the first time, or if you have just downloaded an updated installer from the Blackmagic website:

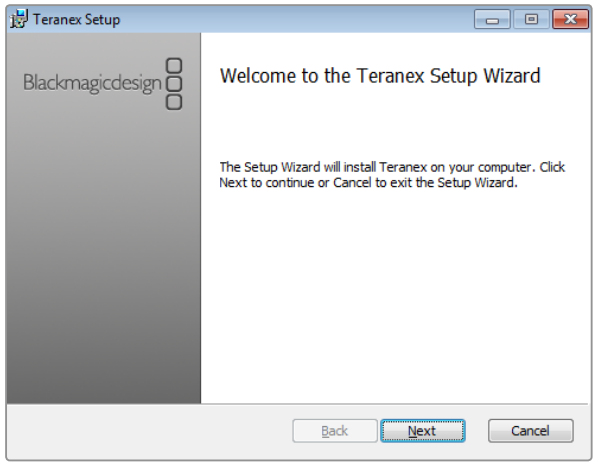
Step 1. Double click on the "Blackmagic Teranex installer" application from the disc or downloaded disk image to launch the "Blackmagic Teranex Installer".

Step 2. Click the Continue, Agree, and Install buttons and the software will be installed on your computer.

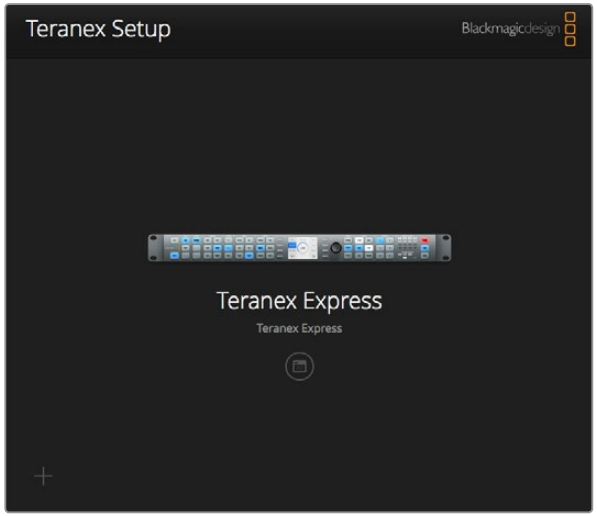
Step 3. Now restart your computer to enable the new software drivers.

On Mac OS X, all the files needed to run your Teranex Processor will be installed into a folder called Blackmagic Teranex in the Applications folder. The folder contains the Teranex Setup utility which allows you to update the internal software via USB, and the instruction manual, which can be found in the Documents subfolder together with other Teranex information.

Blackmagic Media Express, Disk Speed Test, Live Key and UltraScope are also installed and can be located in the Blackmagic Design System Preferences or Applications folder. Blackmagic Media Express allows your Teranex 2D or 3D Processor to capture and playback video when connected to a computer via Thunderbolt. The Thunderbolt connection also allows you to perform waveform monitoring of your video input using Blackmagic UltraScope software.


Teranex Setup
Blackmagicdesign
Welcome to the Teranex Setup Wizard
The Setup Wizard will install Teranex on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Back
Next
Cancel

Launch the Blackmagic Teranex Installer and follow the install prompts.



Installing Blackmagic Teranex Software on Windows

If a "Blackmagic Teranex Installer" has been previously installed on your computer for an earlier version of software, you must uninstall the application before attempting to install the new version.

Step 1. Ensure you have the very latest software. Visit www.blackmagicdesign.com/support. Download the latest Teranex software update and unzip the windows MSI file.

Step 2. Double click the MSI filename to launch the installer program. Click NEXT to start the Blackmagic Teranex Setup Wizard. After reading the Blackmagic Teranex Information page, click NEXT. Accept the End User License Agreement and click NEXT.

Step 3. Click INSTALL on the "Ready to install Blackmagic Teranex" page. The "Installing Blackmagic Teranex" page with Status bar will appear and installation of the software will begin. An alert will appear asking your permission to install software on the computer. Click YES to continue.

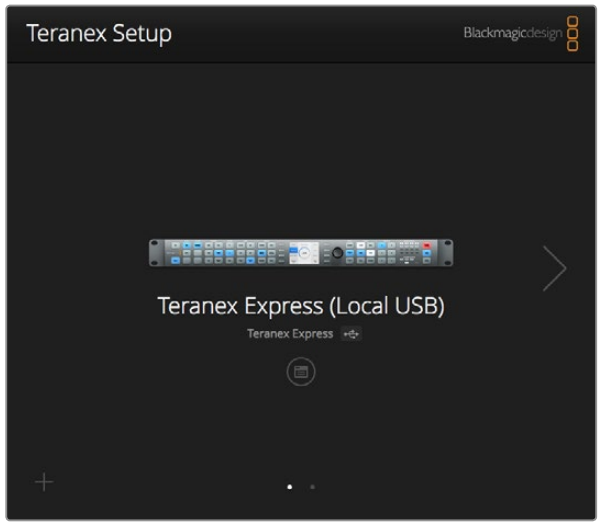
Step 4. Click FINISH on the "Completed the Blackmagic Teranex Setup Wizard" page.

Step 5. Restart your computer to complete the installation.

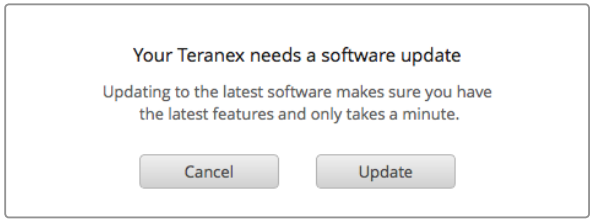
Once the computer has restarted, all the Blackmagic Teranex software applications will be installed and can be accessed from Start > Programs > Blackmagic Design.

You'll now need to check if your Teranex processor requires updating using the Blackmagic Teranex Setup utility, which is located in the Blackmagic Teranex folder in Start > All Programs > Blackmagic Design. Refer to the 'Updating the Teranex Processor Software' section on the next page for more instructions.

The Blackmagic Design folder also contains Blackmagic Media Express, which allows the Teranex 2D and 3D Processors to capture and playback video via a Thunderbolt connection. Blackmagic UltraScope software allows you to perform waveform monitoring using the Thunderbolt connection.



After connecting your Teranex via USB and clicking on the setup icon under your Teranex Processor's name, Teranex Setup will automatically check if the unit needs an update. If an update is required, a window will appear prompting you to update your Teranex.


Your Teranex needs a software update
Updating to the latest software makes sure you have the latest features and only takes a minute.
Cancel
Update

Click on the Update button to install the software.

Updating the Teranex Processor Software

Occasionally, the internal software in your Teranex Processor will need to be updated. Updates to internal software can provide new features, bug fixes, compatibility with new hardware, and support for new formats.

After you have installed the latest software on your Mac OS X or Windows computer using the instructions on the previous page, follow the steps below to update the internal software:

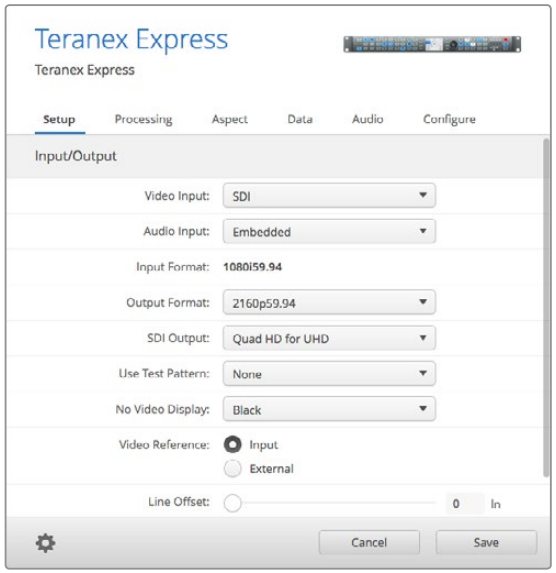
Step 1. Connect your computer to the Teranex processor via USB.

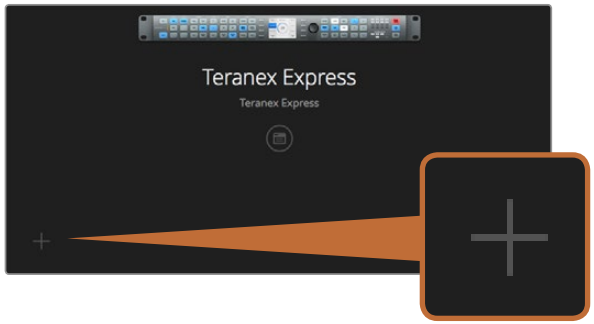
Step 2. Launch the Blackmagic Teranex Setup utility. Any Teranex processors connected to your network will automatically be displayed.

Step 3. Select the Teranex Processor that is connected via USB. The USB connection icon will be displayed next to the Teranex Processor name. Click the round setup icon below the processor's name to establish a connection.

Step 4. The utility will inform you if an update is required. If an update is required, click the Update button and the software will install. Make sure you don't unplug the Teranex Processor while the update is in progress.

Step 5. Click the Close button when the update is finished and disconnect your USB cable.





To manually add a Teranex Processor, click the "+" icon on the log in pane to open the 'Add a Teranex' window, then enter the IP address of your Teranex Processor.

Blackmagic Teranex Setup Utility

The Blackmagic Teranex Setup utility offers an intuitive way to view the status of your Teranex Processor and provides remote control from any location on your Ethernet network. This convenient application allows you to install your Teranex Processors in another room, while providing remote operation from a control room or office.

Getting to Know the Interface

When you launch Blackmagic Teranex Setup utility, you'll first see the log in pane. From here you can see all your connected Teranex Processors on your Ethernet network, and you can add more Teranex Processors if you need to. Open the Setup utility by clicking on the Setup icon below the name of your Teranex Processor.

Resizing the Interface

Click and drag the bottom right corner of the log in pane to proportionally resize the interface to best fit your screen size. Alternatively, drag a window edge to resize either vertically or horizontally.

Selecting a Teranex Processor

The Teranex Setup utility will automatically locate your Teranex processor on your Ethernet network and will display it by model name in the log in pane. If more than one Teranex Processor is found, each will be displayed in a separate window. Simply click the arrows in the right and left screen margins to select the desired processor, then click the icon below the processor's name to establish a connection.

If your Teranex Processor did not automatically appear, you can add the unit manually using its IP address. The IP address of your Teranex Processor can be found via the unit's front panel in the System Setup Menu. If you need to establish a new IP address, either static or via DHCP, this can also be done from the front panel. Please refer to the System Setup Menu section of this manual for details.

To add a Teranex Processor using Teranex Setup:

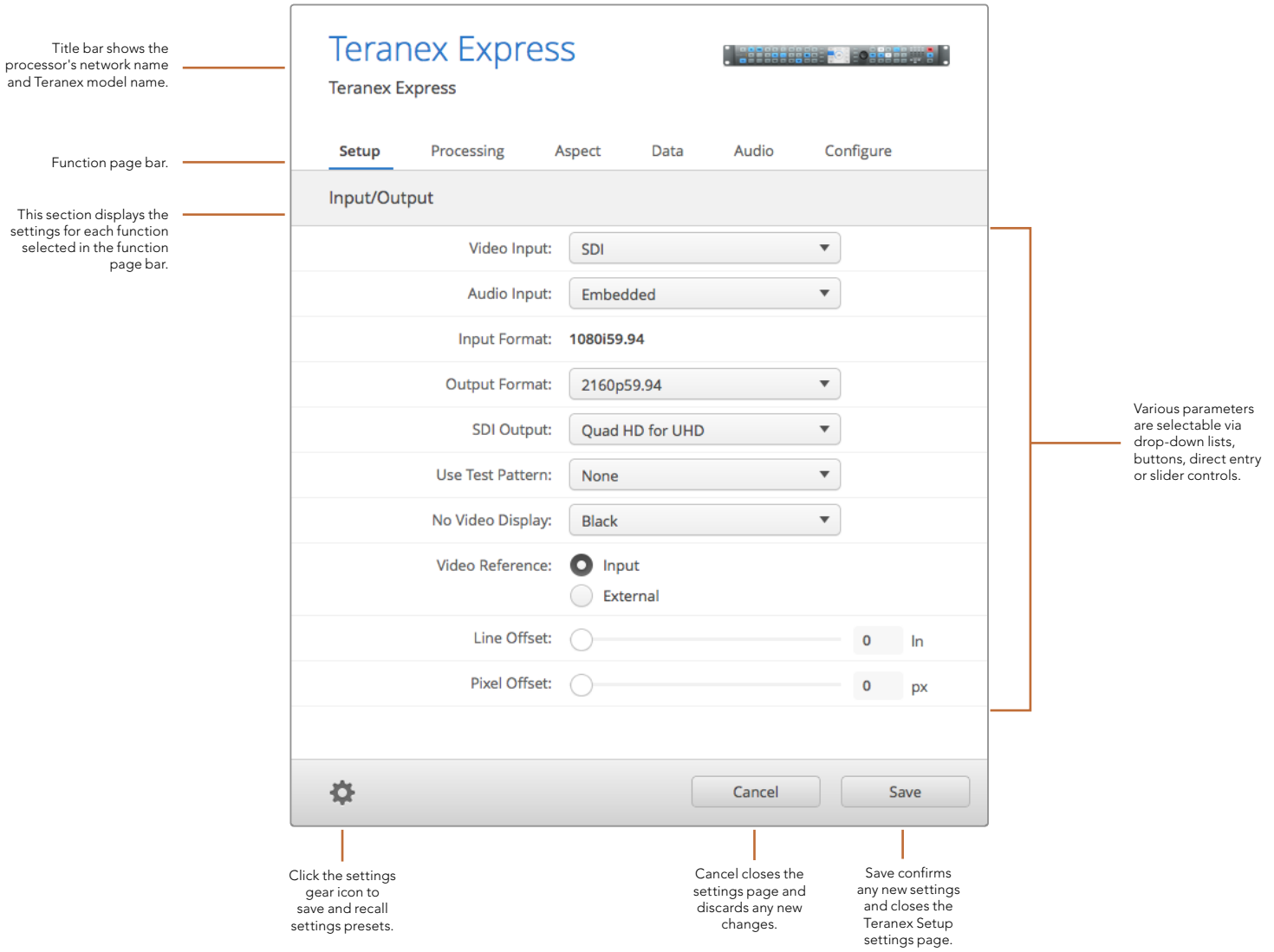
Step 1. Press the + (add device) button at the bottom left corner of the login pane.

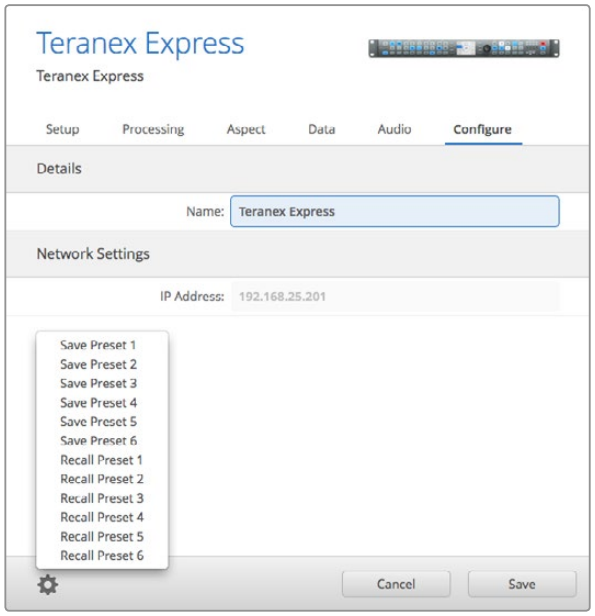
Step 2. Type in the IP address and press Add.

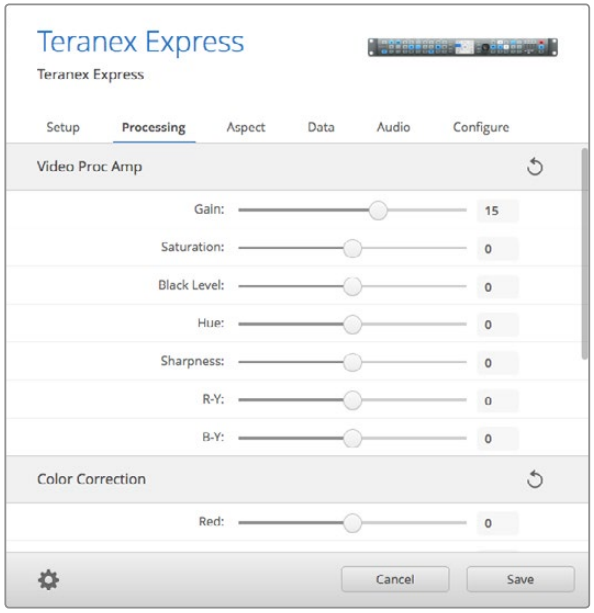
Step 3. The Teranex Processor will appear as another controllable device on your network.

Blackmagic Teranex Processor Control at a Glance

The screen layout of the Blackmagic Teranex Setup utility is easy to use, providing a title bar, six major functional pages and a settings gear.







Menus and Buttons Explained

Most of the remote control functions and parameters in the interface are very intuitive, especially if you are familiar with the front panel operation of the Teranex Processors.

Function Page Bar

Setup and operational controls are separated by function into six pages.

Setup Selection of video and audio input sources, output video format, external reference and other functions. Unlike the front panel mode of operation, a change of output format is immediately processed and does not require confirmation.

Processing Access to Video Proc Amp and Color Correction controls, as well as noise reduction and other advanced functions.

Aspect Choice of aspect ratio, including fixed aspect ratios, variable aspect ratio controls and choice of color fill for PBOX/LBOX aspect ratios.

Data Ancillary data parameters, including timecode, closed captions and video indexing.

Audio Audio gain, delay and mapping functions.

Configure Displays the name, model and IP address of the Teranex you are controlling. You can also give the unit a unique name so you can identify it when you have multiple Teranex units in your system. Simply click in the Name field and enter a new name for each device. The new name will be seen when you are selecting a Teranex to control via the utility and will also be displayed in the utility's header once connected.

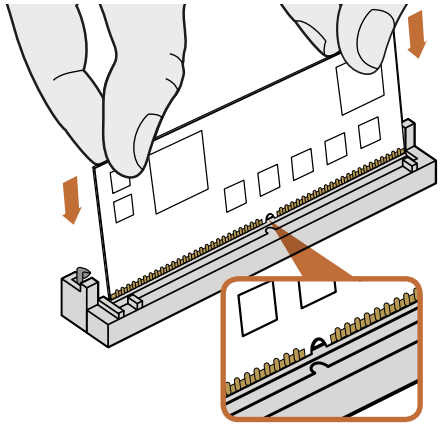
Settings Menu

The Settings Menu lets you Save and Recall Presets 1 through 6. Click on the Settings gear to reveal a drop down menu, then click on Save or Recall for the desired Preset number. You will be asked to confirm your selection in a dialog box.

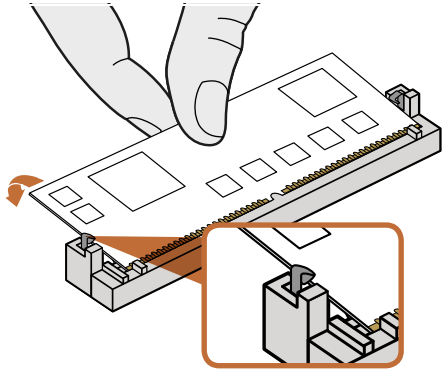
Slider Adjustments

To make adjustments, click and drag a slider with your mouse. Another way to adjust a slider is to use the directional keys on your keyboard. The Up and Right arrows will increment the slider by 1 unit, while the Left and Down arrows will decrement the value. You can also click in the value box to enter a slider value directly. When needed, you can simultaneously reset all parameters within a section to their default values by clicking the circular back arrow icon.

Installing Optional Blackmagic Dolby® Encoder/Decoder



Holding the Blackmagic Dolby encoder or decoder module by the top edges, align the module's keyway to the SIMM slot key and gently insert the module until it is firmly seated.



Lean the Blackmagic Dolby encoder or decoder module towards the rear of the chassis until the metal clips fasten to both sides.

Installing the optional Blackmagic Dolby Encoder or Decoder Module in your Teranex 3D Processor

WARNING

Installation requires removing the lid from your Teranex 3D Processor's chassis to access the motherboard and should only be performed by qualified individuals. Precautions should be taken to reduce the risk of electrostatic discharge while installing the module.

Installing the Module

By installing a Blackmagic Dolby encoder or decoder module in your Teranex 3D Processor you can input and output Dolby Digital or Dolby E audio. When installed you can output discrete Dolby channels via SDI, analog or AES/EBU. By installing the Dolby encoder, audio can be output via SDI, analog or AES/EBU using the Dolby Digital or Dolby E encoded signal.

The Blackmagic Dolby encoder and decoder are 72 pin SIMM modules that are easily installed into the empty SIMM slots on your Teranex 3D's motherboard.

To install the Blackmagic Design Dolby encoder or decoder module:

Step 1. Ensure the power is unplugged.

Step 2. Unscrew all Teranex 3D's 12 lid screws using a T10 Torx screwdriver. Carefully remove the lid, keeping the earth lead secured.

Step 3. Hold the Dolby encoder or decoder module with its contacts facing the empty SIMM slot labelled 'Encode' or 'Decode' respectively. The SIMM's keyway needs to be aligned with the slot key or the SIMM will not seat.

Step 4. Gently insert the module into the SIMM slot until the contacts are firmly seated.

Step 5. Lean the module towards the rear of your Teranex 3D until the metal clips fasten to each side of the module.

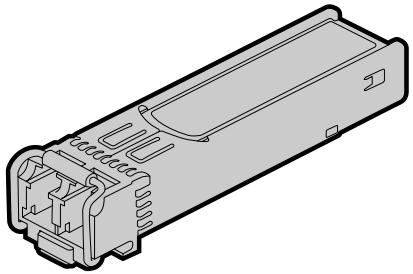
Step 6. Replace the lid and screw in all lid screws.

After installation, place the supplied Dolby sticker on the lid near the back panel so you can easily verify the Dolby module or modules have been installed.

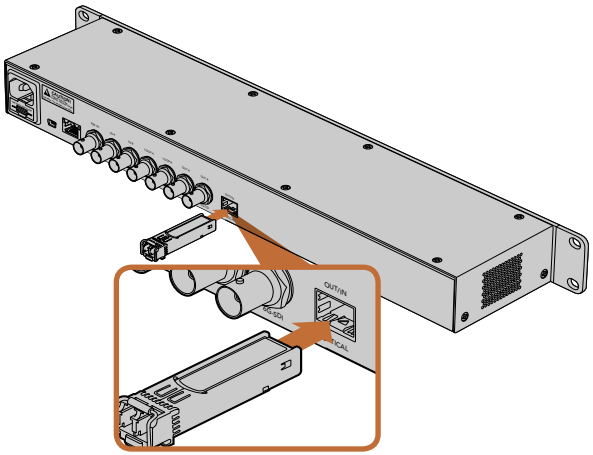
Confirming Dolby Audio

To output Dolby audio from your Teranex 3D, map your Dolby audio output channels using the control panel LCD menus. For instructions, refer to the "Audio Mapping" section on page 23.

Installing Optional Blackmagic Fiber Optic SFP



Blackmagic Design SFP Module



Installing the SFP Module into the Teranex Express.

Installing the optional Blackmagic Fiber Optic SFP in your Teranex Express Processor

WARNING

Precautions should be taken to reduce the risk of electrostatic discharge while installing the SFP module.

Installing or removing the Module

The Blackmagic Design Fiber Optic SFP module has a clasp to assist you in removing or installing the module. The module is "hot-pluggable," meaning that it may be installed or removed without powering down the Teranex Express.

The Blackmagic Design SFP supports single mode optical fiber cable. It is bi-directional, supporting video formats up to Ultra HD at 6Gb/s.

To install the Blackmagic Design SFP Module:

Step 1. Close the clasp before inserting the SFP module.

Step 2. Remove the cage cover from the optical module cage on the rear of the Teranex Express.

Step 3. Line up the SFP module with the optical module cage and slide it into the cage. Verify that the SFP module is completely seated and secured in the cage by firmly pushing on the SFP module.

Step 4. If a dust protector is present on the SFP module, leave it in place until you are ready to install your fiber optic cables.

To remove the Blackmagic Design SFP Module:

Step 1. Disconnect all fiber optic cables from the SFP.

Step 2. Open the clasp on the SFP module with your index finger or a small, flat-blade screwdriver.

Step 3. Grasp the SFP module and carefully remove it from the cage.

Step 4. Immediately place the SFP module in a static shielding bag.

Step 5. Insert an SFP module cage cover into the optical module cage of the Teranex Express when no SFP module is installed.

Developing custom software using Blackmagic Design hardware

The DeckLink SDK is available to developers who wish to programmatically control Blackmagic video hardware with their own custom software, and supports the Teranex, UltraStudio, DeckLink, Multibridge and Intensity families of products.

Low-level control of hardware and high-level interfaces is provided to allow developers to easily perform common tasks. The DeckLink SDK supports technologies including:

- Apple QuickTime
- Apple Core Media
- Microsoft DirectShow
- DeckLink API

Downloading the free Blackmagic Design SDK

The DeckLink SDK is free and can be downloaded from http://www.blackmagicdesign.com/support/sdks/

Joining the Blackmagic Design developer list

The Blackmagic Developer mailing list is designed for technical questions regarding technologies used by Blackmagic Design, eg QuickTime, Core Media, DirectShow, codecs, APIs, SDKs, etc. The free mailing list is a forum where developers can discuss ideas and problems with other developers. Any subscriber may reply and the Blackmagic Design engineers may also respond when appropriate. You can subscribe to the mailing list at: http://lists.blackmagicdesign.com/mailman/listinfo/bmd-developer

In some cases, we might request a brief outline of the software you are developing if it is not immediately obvious from your domain name that your organization develops video software. Please don't take offence as we're simply trying to keep the list free of spam and viruses as well as end-user customers asking non-development questions, employment agents or sales people trying to promote products on the list. The list is just for developers!

Contacting Blackmagic Design developer assistance

You can also contact us via developer@blackmagicdesign.com if you have any developer related questions or wish to ask questions off the list.

Getting Help

The fastest way to obtain help is to go to the Blackmagic Design online support pages and check the latest support material available for your Teranex Processor hardware.

Blackmagic Design online support pages

The latest manual, software and support notes can be found at the Blackmagic Design support center at www.blackmagicdesign.com/support.

Contacting Blackmagic Design support

If you can't find the help you need in our support material, please use the "Send us an email" button on the support page to email a support request. Alternatively, click on the "Find your local support team" button on the support page and call your nearest Blackmagic Design support office.

Checking the version currently installed

To check which version of Blackmagic Teranex software is installed on your computer, open the About Teranex Setup utility window.

- On Mac OS X, open the Blackmagic Teranex Setup utility from the Applications folder. Select About Blackmagic Teranex Setup from the title bar to reveal the version number.
- On Windows 7, open Blackmagic Teranex Setup from your Start menu. Click on the Help menu and select About to reveal the version number.
- On Windows 8, open Blackmagic Teranex Setup from the Blackmagic Teranex tile on your Start page. Click on the Help menu and select About to reveal the version number.

How to get the latest updates

After checking the version of Blackmagic Teranex software installed on your computer, please visit the Blackmagic Design support center at www.blackmagicdesign.com/support to check for the latest updates. While it is usually a good idea to run the latest updates, it is wise to avoid updating any software if you are in the middle of an important project.

Caution label
Warnetikett
Avertissement

Caution: Risk of Electric Shock

On the Teranex Processor enclosure you will see a yellow warning label marked 'Caution: Risk of Electric Shock'. This is intended to warn users that there may be the presence of uninsulated "dangerous" voltage within the Teranex Processor enclosure which may be of sufficient magnitude to constitute a risk of electric shock to the user. Blackmagic Design advises you not to open the Teranex Processor unit, but rather contact your nearest Blackmagic Design service center should assistance be required.

Achtung: Stromschlaggefahr

Auf dem Teranex Processor-Gehäuse befindet sich ein gelbes Warnetikett mit der Aufschrift 'Caution: Risk of Electric Shock'. Dieses warnt den Benutzer vor einer möglichen, nicht isolierten, "gefährlichen" Spannung innerhalb des Teranex Processor-Gehäuses, die einen Elektroschock verursachen kann. Blackmagic Design empfiehlt das Gehäuse des Teranex Processor nicht selbst zu öffnen, sondern bei Hilfebedarf das nächstgelegene Blackmagic Design Servicecenter zu kontaktieren.

Attention: Risque de choc électrique

Sur le boîtier du Teranex Processor, vous verrez une étiquette d'avertissement de couleur jaune sur laquelle est inscrit « Attention : Risque de choc électrique ». Cette mise en garde est destinée à avertir les utilisateurs de la présence possible d'une tension « dangereuse » non isolée à l'intérieur du boîtier du Teranex Processor, laquelle tension pouvant avoir une amplitude suffisante pour constituer un risque de choc électrique à l'utilisateur. Blackmagic Design vous déconseille donc d'ouvrir l'unité Teranex Processor, et vous recommande de contacter votre centre de service Blackmagic Design le plus proche en cas de nécessité.

12 Month Limited Warranty

Blackmagic Design warrants that the Teranex family products will be free from defects in materials and workmanship for a period of 12 months from the date of purchase. If a product proves to be defective during this warranty period, Blackmagic Design, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify Blackmagic Design of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by Blackmagic Design, with shipping charges pre paid. Customer shall be responsible for paying all shipping changes, insurance, duties, taxes, and any other charges for products returned to us for any reason.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Blackmagic Design shall not be obligated to furnish service under this warranty: a) to repair damage resulting from attempts by personnel other than Blackmagic Design representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non Blackmagic Design parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product. THIS WARRANTY IS GIVEN BY BLACKMAGIC DESIGN IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. BLACKMAGIC DESIGN AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. BLACKMAGIC DESIGN'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER BLACKMAGIC DESIGN OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. BLACKMAGIC DESIGN IS NOT LIABLE FOR ANY ILLEGAL USE OF EQUIPMENT BY CUSTOMER. BLACKMAGIC IS NOT LIABLE FOR ANY DAMAGES RESULTING FROM USE OF THIS PRODUCT. USER OPERATES THIS PRODUCT AT OWN RISK.

© Copyright 2014 Blackmagic Design. All rights reserved. 'Blackmagic Design', 'DeckLink', 'HDLink', 'Workgroup Videohub', ' Videohub', 'DeckLink', 'Intensity' and 'Leading the creative video revolution' are registered trademarks in the US and other countries. All other company and product names may be trade marks of their respective companies with which they are associated.

Thunderbolt and the Thunderbolt logo are trademarks of Intel Corporation in the U.S. and/or other countries.